

AFTT/GEE/ENV/96D-14

ANALYSIS OF AIR FORCE
ENVIRONMENTAL JUSTICE
METHODOLOGY

THESIS

Barbara E. Owens, Captain, USAF

AFTT/GEE/ENV/96D-14

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METHODOLOGY

THESIS

Presented to the Faculty of the School of Engineering

Air Education and Training Command

In Partial Fulfillment of the

Requirements for the Degree of

Master of Science in

Engineering and Environmental Management

Barbara E. Owens, B.S.

Captain, USAF

December 1996

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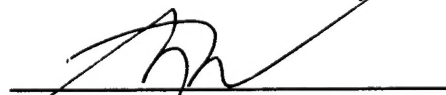
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List of Acronyms

AFB	Air Force Base
AFBCA	Air Force Base Conversion Agency
AFCEE	Air Force Center for Environmental Excellence
BNA	Block Numbering Area
BRAC	Base Realignment and Closure
CEQ	Council on Environmental Quality
DOD	Department of Defense
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EJ	Environmental Justice
EO	Executive Order
EPA	Environmental Protection Agency
FEIS	Final Environmental Impact Statement
GIS	Geographic Information System
HHS	Department of Health and Human Services
HUD	Department of Housing and Urban Development
IWG	Interagency Working Group
NAACP	National Association for the Advancement of Colored People
NEPA	National Environmental Policy Act

PCB	Polychlorinated Biphenyl
RAIF	Resource Adverse Impact Footprint
ROC	Region of Comparison
ROI	Region of Influence
RCRA	Resource Conservation and Recovery Act
TIGER	Topographically Integrated Geographic Encoding and Referencing
USEPA	United States Environmental Protection Agency

Abstract

Executive Order (EO) 12898, Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations, was signed on February 11, 1994, and requires all Federal agencies to address environmental justice as part of the way they do business, to include incorporation of environmental justice into the NEPA process. The language within EO 12898 is vague and key terminology lacks definition. It gives no guidance on actual implementation procedures or metrics to gauge the quality of environmental justice analysis as applied to minority and low-income groups. In the absence of concrete guidance on these issues, the Air Force Center for Environmental Excellence, AFCEE, formed a draft methodology to address environmental justice issues in the NEPA process, based on their interpretation of EO 12898. AFCEE seeks an independent analysis and validation of their draft methodology.

The purpose of this study is to analyze AFCEE's draft environmental justice methodology. The study provides background on the meaning of environmental justice along with related terminology, and covers historical events of the environmental justice movement leading up to the publication of EO 12898. A discussion of EO 12898, subsequent draft guidance, and other pertinent literature leads to the development of evaluation criteria used to analyze both AFCEE's methodology and an application of that methodology: the March AFB Disposal Final Environmental Impact Statement.

Given that AFCEE formed their own methodology to address environmental justice prior to any definitive guidance regarding the interpretation of EO 12898, the methodology and its application do extremely well at meeting the intent of EO 12898, per the evaluation criteria developed in the study. The framework for the evaluation criteria consists of four categories: demographic analysis, impact analysis, integration of demographic analysis and impact analysis, and community involvement. There are a total of 17 criteria within this framework. With respect to reflecting the requirements of EO 12898, AFCEE's draft methodology met ten criteria, was limited in five criteria, and did not meet two of the criteria. When a sample AFCEE application was analyzed, eight of the criteria were met, and nine were not met. This was due, in part, to the fact that the application analyzed was a Base Realignment and Closure Environmental Impact Statement.

ANALYSIS OF AIR FORCE
ENVIRONMENTAL JUSTICE
METHODOLOGY

I. Introduction

Chapter Overview

This chapter describes the problem addressed by the thesis, delineates the scope of research, provides justification for the research effort, and summarizes the methods used to analyze the Air Force Center for Environmental Excellence's (AFCEE) environmental justice methodology.

Purpose of the Study

The purpose of this study is to analyze a methodology developed by AFCEE that strives to incorporate environmental justice issues into the National Environmental Policy Act (NEPA) process, with focus on Environmental Impact Statement (EIS) documentation. It explores the meaning of environmental justice along with related terminology, and chronicles historical events leading up to and through the perpetuation of the environmental justice movement. The Presidential response to this movement, Executive Order (EO) 12898, Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations, is examined. Portions of EO 12898 dealing specifically with National Environmental Policy Act (NEPA), together with related literature and Environmental Protection Agency (EPA) and Council on Environmental Quality (CEQ)

draft guidance, provide the framework to form evaluation criteria used in the analysis of AFCEE's methodology. The analysis of AFCEE's methodology is based on assessing two documents against the evaluation criteria: AFCEE's Draft Methodology - Environmental Justice Analysis, and the application of this methodology in the March AFB Disposal Environmental Impact Statement (EIS).

Justification for the Research

By providing an independent analysis of AFCEE's methodology, this research effort gives a independent perspective on assessing how well the methodology fulfills the intent of the EO as set forth on February 11, 1994. This serves to aid those Federal agencies that are still in the process of formulating or refining environmental justice strategies/methodologies. This research effort was initiated at the request of the Environmental Planning Division within the Environmental Conservation & Planning Directorate at AFCEE.

Problem Statement

The language within EO 12898 is vague and key terminology lacks definition. (For example, the term, *disproportionate impact*, is used throughout the EO, but is left undefined.) Understanding that this document is meant to reach the wide audience of all Federal Agencies, it gives no guidance on actual implementation procedures or metrics to gauge the quality of environmental justice analysis as applied to minority and low-income groups. In the absence of concrete guidance on these issues, AFCEE formed a methodology to address environmental justice issues in the NEPA process, based on their

interpretation of EO 12898. AFCEE seeks an independent analysis and validation of their methodology.

Research Objective

The objective of this study is to explore the meaning of environmental justice, and to execute an independent analysis of AFCEE's environmental justice methodology developed in response to EO 12898.

Research Questions

Three research questions were developed to guide this research. These questions led research efforts and provide the focus for this study. The main research questions are listed below.

1. What is environmental justice?
2. How well does AFCEE's methodology incorporate environmental justice issues into their NEPA processes as required by EO 12898?
3. How well does an application of AFCEE's environmental justice methodology incorporate environmental justice issues into their NEPA processes as required by EO 12898?

Research Approach

An assessment of AFCEE's environmental justice methodology, descriptive rather than prescriptive in nature, is made based on the formulation of evaluation categories and associated criteria intended to reflect the directives set forth in EO 12898. The study is structured to first examine documentation related to interpreting the meaning of environmental justice and related terminology. To place EO 12898 in its proper historical context, significant events surrounding the environmental justice movement are presented. Using existing documentation, evaluation categories/criteria based on the directives in EO 12898 are created to be used in assessing AFCEE's environmental justice methodology. Two products of this methodology, the actual Draft Methodology, and an application of it in an EIS, are the subject documents of analysis.

To gain insight into the AFCEE's role in the formation of an environmental justice methodology, key personnel are interviewed. A review of available documentation surrounding AFCEE's methodology development is performed.

Other Federal agencies' environmental justice efforts are discussed briefly in the Appendices based on available documentation.

Outline

Chapter 2, Literature Review, presents and summarizes the literature surrounding the meaning of environmental justice and related terminology, and chronicles the sequence of events leading up to the publication of EO 12898. It examines portions of EO 12898

that deal specifically with the NEPA process. The first research question is answered in this chapter.

Chapter 3, Methodology, details the research approach and methods used to collect and analyze information used to answer the research questions. The evaluation categories/criteria to be used in analyzing AFCEE's environmental justice methodology and its application are developed and discussed.

Chapter 4, Analysis, presents the results of the assessment, using the evaluation categories/criteria developed in Chapter 3 to assess AFCEE's methodology and an application of that methodology.

Chapter 5, Summary, presents conclusions reached from the analysis.

Appendix A includes a supplementary analysis of the March AFB Disposal FEIS, using a document review analysis.

Appendix B briefly discusses three other Federal agencies' environmental justice efforts.

Appendix C - E include EO 12898, AFCEE's Draft Methodology - Environmental Justice Analysis, and March AFB Disposal FEIS, respectively.

Summary

This chapter presented a research problem, provided justification for the research, and stated the research questions used to guide the study. It described the scope used to focus the research, and detailed the approach used in synthesizing and analyzing information.

II. Literature Review

Chapter Overview

This chapter provides the background information concerning the pertinent issues related to this research. The first section begins with an introductory discussion of the meaning of environmental justice along with related terminology, and continues with a historical perspective of the environmental justice movement leading up to the publication of EO 12898. This forms the basis to answer the first research question: what is environmental justice?

The second section of this chapter completes the answer to the first research question, and builds part of the foundation which will be used to answer the second research question: how well does AFCEE's methodology incorporate environmental justice issues into their NEPA processes as required by EO 12898? This section begins with a general description of the directives set forth within EO 12898. To provide background and aid in the understanding of the driving forces behind EO 12898, the Principles of Justice as developed by the First National People of Color Environmental Leadership Summit are discussed. Additional background is presented in the form of a framework for building environmental justice into government, which was developed by Dr. Bullard.

Returning to EO 12898, the focus narrows to the portion of the EO aimed at dealing with the National Environmental Policy Act (NEPA), with an accompanying overview of

the NEPA process. Terms and phrases used in the EO needing further clarification and/or definition are explored.

The answer to the first primary research question is answered at the end of the Literature Review: what is environmental justice?

Definitions of Environmental Justice and Related Terminology

As defined in the New Webster Encyclopedic Dictionary of the English Language, the word *environmental* is defined as pertaining to "that which surrounds, encompasses, or encircles...another place" (Thatcher, 1980:293). *Justice* is defined as "the quality of being just; justness; propriety; correctness; rightfulness; just treatment; vindication of right..." (Thatcher, 1980:468). Taken together, the words *environmental justice* could thus plausibly be interpreted as the quality of being fair, or just, concerning that which surrounds us. However, the meaning of *environmental justice* encompasses much more. The definition of this term is best described in the context of its related terminology.

Environmental racism. The term *environmental racism* was coined in 1987 by Rev. Benjamin Chavis, Jr., who at the time was Executive Director of the United Church of Christ's Commission for Racial Justice. As defined here, environmental racism acts as a driver in demanding a re-assessment of environmental policy and law:

Environmental racism is the racial discrimination in environmental policy-making and enforcement of regulations and laws, the deliberate targeting of communities of color for toxic waste facilities, the official sanctioning of the presence of life-threatening poisons and pollutants in communities of color, and the history of excluding people of color from leadership of the environmental movement. (Chavis, 1993: xi-xii)

Similar definitions of *environmental racism* include: "...the intentional practice of racially discriminatory siting" (McDermott, 1994:689), and "...the social injustice represented by the disproportionately large number of health and environmental risks cast upon peoples of color in the communities in which they live" (Buntin, 1995:WWWeb).

Environmental injustice. With acknowledgment of the existence of racial discrimination as it pertains to environmental policy and law, the definition of *environmental injustice* broadens the concept to include both minority and poor communities. The idea that pollution is not borne equally among the rich and the poor is discussed by Rosen:

...the fact that poor communities are disproportionately harmed by industrial toxic pollution and that corporations and government -- intentionally or unintentionally -- build their worst toxic sites and store their most hazardous chemicals in and around these low-income neighborhoods. It also refers to the well-documented fact that local governments have excluded minority communities from environmental planning and that toxic sites have destroyed many traditional minority communities. (Rosen, 1994: 223-224)

Environmental justice. Understanding that *environmental justice* could be considered the opposite of *environmental injustice*, it follows that environmental justice would seek to eliminate environmental injustice. Ultimately, the realization of environmental justice would serve to prevent the creation of negative environmental consequences in the first place. It constitutes "...a movement to relieve all communities of the burden of emissions by curtailing waste generation and preventing all pollution" (McDermott, 1994:689). The current reality is that negative environmental consequences do exist, and these consequences are not distributed equally across the various segments of

society. Thus, for the purposes of the remainder of this research, the definition of environmental justice is:

...the fair treatment of people of all races, cultures, and income with respect to the development, implementation and enforcement of environmental laws, regulations, and policies. Fair treatment means that no racial, ethnic or socioeconomic group should bear a disproportionate share of the negative environmental consequences resulting from the operation of industrial, municipal and commercial enterprises and from the execution of federal, state and local, and tribal programs and policies. (USEPA-a, 1995:3)

Environmental equity. A synonym for *environmental justice*, *environmental equity* "...involves evenly balancing the siting of potentially environmentally hazardous facilities among communities of all backgrounds" (McDermott, 1994:689). Prohibiting discrimination, environmental equity demands "equal protection from environmental hazards for individuals, groups, or communities regardless of race, ethnicity, or economic status" (USEPA-b, 1995:53).

History of Environmental Justice Movement

The following chronology discusses the history of the environmental justice movement leading up to the publication of EO 12898.

Issuing forth from striving for social justice, the environmental justice movement developed in the late 1970s. However, people of color saw the connection between social justice and environmental protection issues prior to the 1970s (Ferris and Hahn-Baker, 1995:67). While Martin Luther King may not have thought himself as an environmentalist, when he traveled to Memphis that tragic and fateful day in 1968, he was going to protest

the working conditions of trash collectors, mostly black men whose complaints included exposure to hazardous wastes (Dowie, 1995:140-141).

In 1978, the US Environmental Protection Agency (EPA) published a brochure entitled "Our Common Concern", which highlighted the disproportionate impact of pollution on people of color. Also included were comments from civil rights activists such as Vernon Jordan, Coretta Scott King, and Bayard Rustin (Ferris and Hahn-Baker, 1995:67). This recognition by the USEPA got the attention of mainstream environmental organizations, some of which acknowledged the importance of joining forces with civil rights organizations.

The National Urban League and the Sierra Club jointly sponsored the 1979 City Care conference in Detroit which was important for two reasons: it was the beginning of dialogue on re-defining the environment to include more than just wilderness and wildlife concerns; and it united civil rights organizations together with environmental organizations in common interests (Ferris and Hahn-Baker, 1995:67).

Some consider the birthplace of the environmental justice movement to be in Warren County, North Carolina. The state had decided to build a toxic waste landfill for 6,000 truckloads of PCB-contaminated dirt in this largely black and poverty-stricken area. Before the demonstrations were finished, 500 people had been arrested, including prominent civil rights figures and members of the Black Congressional Caucus. While the protests were unsuccessful at keeping the landfill out of Warren County, an interracial movement was created (Bullard, 1994:5).

Demonstrations prompted District of Columbia delegate Walter Fauntroy, chairman of the Congressional Black Caucus, to initiate the 1983 US General Accounting Office (GAO) study of hazardous waste landfill siting in the EPA's Region IV. (Fauntroy had been an active participant in the protests and actually went to jail over the landfill). This study found a strong relationship between the location of off-site hazardous waste landfills and the race and socio-economic status of the surrounding communities (Bullard, 1994:6). African Americans constituted the majority of the population in the majority of communities where off-site hazardous waste landfills were located. In 1983, African Americans made up only one-fifth of the region's population, yet these same communities contained three-fourths of the off-site landfills (Bullard, 1994:6).

During the mid-1980s, the environmental justice movement gained momentum. African-American children chained themselves to waste-filled dump trucks in South Chicago, Illinois. A multiracial coalition organized by people of color from South Central Los Angeles successfully blocked the installation of an incinerator in their community. Native American tribes resisted siting proposals for disposal facilities on their lands (Ferris and Hahn-Baker, 1995:68).

In 1987, the United Church of Christ Commission on Racial Justice published *Toxic Wastes and Race in the United States*, a national statistical survey of the demographics of communities where hazardous waste sites are located. The report concluded that race was the most significant variable among those that were tested in association with the location of commercial hazardous waste facilities (United Church of Christ, 1987).

In 1989, the Great Louisiana Toxics March through Cancer Alley, from Baton Rouge to New Orleans, was organized and nationally publicized by Gulf Coast Tenants Organization. Networks of community-based organizations were forming (Ferris and Hahn-Baker, 1995:68).

In 1990, a momentous conference involving leading researchers and scholars in the environmental justice field, activist leaders, and EPA officials was sponsored by the University of Michigan School of Natural Resources (Ferris and Hahn-Baker, 1995:68). That same year, then-EPA administrator William K. Reilly authorized an environmental equity study. The study recommended that the agency should give greater priority to environmental equity issues, develop new data systems to assess risk by race and income, and target opportunities for reducing high risks affecting minority and poor communities; and the agency should review and revise its permit, grant, monitoring, and enforcement procedures to address high risks in these communities. As a direct result of the study's findings, Reilly established the Office of Environmental Equity (later to be renamed as the Office of Environmental Justice) in June 1992 (Ember, 1994:22).

Studies and reports continued to call out the unfair distribution of noxious facilities and associated pollution burdens. A 1990 Greenpeace report, "Playing with Fire", among other findings, pointed out the inequitable distribution of incinerators -- the minority portion of the population in communities with existing incinerators is 89 percent higher than the national average (Bullard, 1994:18).

Many states responded to the glaring inequities spelled out by the reports by initiating their own actions to address environmental injustices. In 1990, New York City

adopted a "fair share" legislative model with the aim of ensuring that every community bear its fair share of noxious facilities (Bullard, 1994:15).

Another ground-breaking event occurred in 1991 when the First National People of Color Environmental Leadership Summit convened in Washington DC. The conference included nearly 1,000 environmental justice activists from throughout the US, Africa, and South America. A statement of environmental justice principles was created and a demand for national and worldwide action was set in motion (Ferris and Hahn-Baker, 1995:68).

Following the Summit, the Indigenous Environmental Network was formed to promote the interest of grassroots Native American activists. Also formed was the Southern Organizing Committee, which organized the Southern Community Labor Conference for Environmental Justice in New Orleans in 1992 -- 2,000 activists from fourteen states participated (Ferris and Hahn-Baker, 1995:68). This was just the beginning of the establishment of local and regional environmental justice organizations.

In 1992, Chicago congresswoman Cardiss Collins offered an amendment to the bill reauthorizing the Resource Conservation and Recovery Act (RCRA), requiring assessment of demographic makeup of proposed waste site areas and the cumulative impact a new facility would have on the existing environmental burden (Bullard, 1994:16). This bill has not yet been enacted.

Similarly, in 1992, Georgia congressman John Lewis and former senator Al Gore introduced their version of an Environmental Justice Act. The act was designed to create a program to ensure nondiscrimination in compliance with environmental, health, and safety

laws, and ensure equal protection of the public health (Bullard, 1994:16). This version of the act has not been enacted.

On Earth Day, 1993, President Clinton announced a commitment to pursue a federal action plan to achieve environmental justice for all Americans, which was fulfilled when his administration convened a federal inter-agency task force aimed at assembling a draft Executive Order on Environmental Justice (Ferris, 1994: 316).

On February 11, 1994, President Clinton published EO 12898. The order is “designed to focus Federal attention on the environmental and human health conditions in minority communities and low-income communities with the goal of achieving environmental justice” (Memorandum prefacing EO 12898). A detailed description of EO 12898 occurs later in the chapter.

This concludes the first section of the Literature Review. By covering some of the historical events constituting the environmental justice movement, and exploring related terminology, the meaning of environmental justice begins to take shape.

Executive Order 12898 -- An Examination

On February 11, 1994, President Clinton issued Executive Order 12898, along with an accompanying Presidential memorandum, which intends

- (1) to focus Federal attention on the environmental and human health conditions in minority communities and low-income communities;
- (2) to promote nondiscrimination in Federal programs; and

(3) to provide minority communities and low-income communities access to public information as well as the opportunity to participate in issues relating to human health or the environment.

The purpose of the memorandum preceding the EO is to highlight certain provisions of laws already in existence that are designed to ensure that all communities and persons in the United States live in a safe and healthful environment (Memorandum to Executive Order 12898).

The Executive Order is divided into six sections. Section 1-1 deals with the implementation of the EO which covers agency responsibilities, the creation of an Interagency Working Group on Environmental Justice, the development of agency strategies, and reports required to be submitted to the President. Section 2-2 deals with responsibilities for Federal programs. Section 3-3 speaks to human health environmental research and analysis, and data collection and analysis. Section 4-4 pertains to subsistence consumption of fish and wildlife which includes consumption patterns and developing guidance. Section 5-5 addresses public participation and access to information. The last section, Section 6-6, contains general provisions concerning scope, petitions for exemptions, costs, judicial review, and others (Fed. Reg., 1994:7629-7633).

As this Executive Order is examined, several key terms and phrases are encountered that lack clear definition or further explanation. Those terms and phrases requiring further interpretation/definition will be represented in *italics*, and will be explored in the next segment of this chapter.

As stated above, section 1-1 is subdivided into four areas: agency responsibilities (1-101), creation of an Interagency Working Group on Environmental Justice (1-102), development of agency strategies (1-103), and reports to the President (1-104). Section 1-101 directs each Federal agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, *disproportionately high and adverse human health or environmental effects* of its programs, policies, and activities on *minority populations and low-income populations* ." This statement serves as both the crux of the EO as well as a source of confusion regarding the ambiguity of the meaning of key terms.

Without detailing how agencies are to comply with this mandate, Section 1-102 makes provisions for the creation of an Interagency Working Group, whose aim is to develop plans for actual implementation. The Working Group is comprised of representatives from Department of Defense, Department of Health and Human Services, Department of Housing and Urban Development, Department of Labor, Department of Housing and Urban Development, Department of Labor, Environmental Protection Agency, and several other departments, and is chaired by the EPA Administrator. Their mission is to provide guidance to Federal agencies regarding criteria for "identifying *disproportionately high and adverse human health or environmental effects* on *minority populations and low-income populations*", and serve as the agency responsible for ensuring the "administration, interpretation and enforcement of programs, activities, and policies are undertaken in a consistent manner." They are also tasked with assisting other Federal agencies in coordinating research with each other, and coordinating data collection, both on existing and future studies on environmental justice. Additionally, they are responsible for holding

public meetings, and developing interagency model projects on environmental justice that show cooperation among Federal agencies.

Section 1-103 directs each Federal agency to develop an environmental justice strategy that targets the revision of existing policies, programs, processes, and planning that (1) promotes enforcement of all health and environmental statutes in areas with minority populations and low-income populations; (2) ensures greater public participation; (3) improves research and data collection relating to the health of and environment of minority populations and low-income populations; and (4) identifies differential patterns of consumption of natural resources among minority populations and low-income populations. Also included in this section is a timeline explaining what is expected and when formulation of environmental justice strategies are to be completed. While this section specifies that each Federal agency shall finalize its environmental justice strategy 12 months from the date of this order (creating a deadline of 11 February 1995), it is interesting to note that as of the writing of this document, many Federal agencies have yet to finalize their strategies.

The last subsection calls for the Working Group to submit a report to the President describing the implementation of the Executive order and including the final environmental justice strategies described above.

Section 2-2 specifies that Federal agencies shall conduct their "programs, policies, and activities that substantially affect human health or the environment in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying the benefits of, or subjecting persons to discrimination under such programs, policies, and activities because of their race,

color, or national origin.” This statement serves to underscore Title VI of the Civil Rights Act of 1964.

Section 3-3 addresses research, data collection, and analysis with the focus on minority and low-income populations. Section 3-301 directs that health research conducted by Federal agencies should include diverse sections of the population (minority, low-income) that may have been exposed to environmental hazards, “whenever practicable and appropriate”. Environmental human health analyses should also identify multiple and cumulative exposures. Federal agencies should also provide opportunities for minority and low-income populations to comment on the development of strategies required by this order.

Under Section 3-302, each Federal agency is directed to “collect, maintain, and analyze information assessing and comparing environmental and human health risks borne by populations identified by race, national origin, or income.” This information should be used to determine whether their programs, policies, and activities have a disproportionately high and adverse human health or environmental effect on those same populations. This collection of information should also be collected, maintained, and analyzed for geographic areas surrounding facilities or sites that are expected to have a substantial environmental, human health, or economic effect on the surrounding populations, including Federal facilities that are subject to the reporting requirements under the Emergency Planning and Community Right-to-Know Act. Lastly, Section 3-3 reminds Federal agencies to share information with each other in order to avoid unnecessary duplication of effort.

Section 4-4 deals specifically with the subsistence consumption of fish and wildlife. Federal agencies are directed to collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence and communicate the risks of those consumption patterns to the public. This is in order to "assist in identifying the need for ensuring protection of populations with *differential patterns of subsistence consumption* of fish and wildlife..." Guidance shall be published reflecting the latest scientific information concerning methods for evaluating the human health risks associated with the consumption of pollutant-bearing fish or wildlife. In this section, the population of interest is identified by their reliance on fish and/or wildlife for subsistence, rather than their minority status and/or income level.

Public participation and access to information is the topic of Section 5-5. Recommendations made by the public relating to the incorporation of environmental justice principles into Federal agency programs or policies are to be conveyed to the Working Group. Each Federal agency is required to translate crucial public documents, notices, and hearings relating to human health or the environment for limited English speaking populations. They will also ensure that these documents, notices, and hearings are concise, understandable, and readily accessible to the public. Lastly, the Working Group is tasked with holding public meetings, as appropriate, for fact-finding, receiving public comments, and conducting inquiries concerning environmental justice.

The last section, 6-6, contains a collection of general provisions. It makes the head of each Federal agency ultimately responsible for implementation of the Executive Order. This section clarifies the scope as affecting any agency on the Working Group, and other

agencies that may be designated by the President. If it is questionable whether an agency's programs or activities should be subject to the requirements of this order, a petition for exemption may be made to the President. Each Federal agency responsibility also applies equally to Native American programs. Financial costs to comply with this order shall be assumed by each Federal agency, unless otherwise provided. Finally, the issue of judicial review is addressed. This order "shall not be construed to create any right to judicial review involving the compliance or noncompliance of the United States, its agencies, its officers, or any other person with this order."

Reiterated throughout the Executive Order are the words "whenever practicable and appropriate" used in conjunction with practically every directive, granting a lot of flexibility in interpretation to Federal agencies. Another commonly found phrase is "readily accessible and appropriate information" which refers to the gathering of information required to follow directives as outlined. This also grants considerable leeway for interpretation by each Federal agency.

Principles of Environmental Justice

Prior to the publication of Executive Order 12898, the First National People of Color Environmental Leadership Summit convened in Washington DC in 1991. This groundbreaking event included nearly 1,000 environmental justice activists from throughout the US, Africa, and South America. As a result of the conference, a pronouncement of Principles of Environmental Justice was created (Ferris and Hahn-Baker, 1995:68). While some of the items address issues that are beyond the scope of this research effort, many are

worth examining for the purpose of exploring the meaning of environmental justice and for understanding the intent of Executive Order 12898. The following is from the Proceedings to the First National People of Color Environmental Leadership Summit held on October 24-27, 1991, in Washington DC:

Principles of Environmental Justice (EJ)
PREAMBLE

WE, THE PEOPLE OF COLOR, gathered together at this multinational People of Color Environmental Leadership Summit, to begin to build a national and international movement of all peoples of color to fight the destruction and taking of our lands and communities, do hereby re-establish our spiritual interdependence to the sacredness of our Mother Earth; to respect and celebrate each of our cultures, languages and beliefs about the natural world and our roles in healing ourselves; to insure environmental justice; to promote economic alternatives which would contribute to the development of environmentally safe livelihoods; and, to secure our political, economic and cultural liberation that has been denied for over 500 years of colonization and oppression, resulting in the poisoning of our communities and land and the genocide of our peoples, do affirm and adopt these Principles of Environmental Justice:

The Preamble encompasses much more than environmental justice as it has been defined it thus far. It does state that one of their goals is to ensure environmental justice, as well as to promote economic alternatives to contribute to a safer environment. However, the overall tone of the preamble screams of the unequal burdens that have been carried by people of color throughout history, "...liberation that has been denied for over 500 years of colonization and oppression, resulting in the poisoning of our communities and land and the genocide of our peoples..." Following the Preamble are the first five Principles of Environmental Justice:

1) Environmental Justice affirms the sacredness of Mother Earth, ecological unity and the interdependence of all species, and the right to be free from ecological destruction.

- 2) Environmental Justice demands that public policy be based on mutual respect and justice for all peoples, free from any form of discrimination or bias.
- 3) Environmental Justice mandates the right to ethical, balanced and responsible uses of land and renewable resources in the interest of a sustainable planet for humans and other living things.
- 4) Environmental Justice calls for universal protection from nuclear testing, extraction, production and disposal of toxic/hazardous wastes and poisons and nuclear testing that threaten the fundamental right to clean air, land, water, and food.
- 5) Environmental Justice affirms the fundamental right to political, economic, cultural and environmental self-determination of all peoples.

While one could concentrate on a variety of ideas presented, the focus here will be on those items addressed in Executive Order 12898. Items dealing with those issues outside the realm addressed by EO 12898 will not be discussed. (For example, item 1 implies that to be free from ecological destruction is considered a "right". Would that mean that tornadoes, hurricanes, volcanic eruptions, and the like would be considered unconstitutional and therefore prohibited?)

Item 2 reaffirms the prohibition of discrimination, in accordance with Title VI of the Civil Rights Act of 1964, which is also addressed in the Presidential memorandum preceding EO 12898. Continuing with the Principles:

- 6) Environmental Justice demands the cessation of the production of all toxins, hazardous wastes, and radioactive materials, and that all past and current producers be held strictly accountable to the people for detoxification and the containment at the point of production.
- 7) Environmental Justice demands the right to participate as equal partners at every level of decision-making, including needs assessment, planning, implementation, enforcement and evaluation.
- 8) Environmental Justice affirms the right of all workers to a safe and healthy work environment without being forced to choose between an unsafe livelihood and unemployment. It also affirms the right of those who work at home to be free from environmental hazards.

9) Environmental Justice protects the right of victims of environmental injustice to receive full compensation and reparations for damages as well as quality health care.

10) Environmental Justice considers governmental acts of environmental injustice a violation of international law, the Universal Declaration On Human Rights, and the United Nations Convention on Genocide.

Item 7 alludes to the public outreach required by EO 12898. By drawing the affected public into the decision-making process, even if it requires considerably more effort, (language translation, seeking people out through various organizations), they will have a stake in the implementation and enforcement of the final decision.

Item 8 can be tied to the demographic assessment, used in determining whether an action affects a minority/low-income population disproportionately, required by the EO. It is hard to dispute that there are some segments of society that currently bear more of the environmental burdens of our technological progress -- regardless of income level or ethnicity. However, item 8 spells out that no one should have to choose between living in environmentally unsafe conditions and unemployment. All workers should be accorded the right to a safe and healthy environment at work.

Item 10 seems to raise the environmental injustices committed by the government above those committed by anyone else. Hence, the EO is directed at Federal agencies only and enforceable to the extent determined by the government. Following is the remainder of the Principles:

11) Environmental Justice must recognize a special legal and natural relationship of Native Peoples to the US government through treaties, agreements, compacts, and covenants affirming sovereignty and self-determination.

12) Environmental Justice affirms the need for urban and rural ecological policies to clean up and rebuild our cities and rural areas in balance with nature, honoring the cultural integrity of all our communities, and provided fair access for all to the full range of resources.

13) Environmental Justice calls for the strict enforcement of principles of informed consent, and a halt to the testing of experimental reproductive and medical procedures and vaccinations on people of color.

14) Environmental Justice opposes the destructive operations of multi-national corporations.

15) Environmental Justice opposes military occupation, repression, and exploitation of lands, peoples and cultures, and other life forms.

16) Environmental Justice calls for the education of present and future generations which emphasizes social and environmental issues, based on our experience and an appreciation of our diverse cultural perspectives.

17) Environmental Justice requires that we, as individuals, make personal and consumer choices to consume as little of Mother earth's resources and to produce as little waste as possible; and make the conscious decision to challenge and reprioritize our lifestyles to insure the health of the natural world for present and future generations.

Item 11 mentions the unique relationship between Native Americans and the US government. EO 12898 also stresses that the order applies equally to Native American programs. It also draws attention to consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. While the EO doesn't refer explicitly to Native Americans in this context, it could be inferred. Other items in this section deal with sustainability issues, and fair access to resources.

Building a Framework for Environmental Justice

Dr. Robert Bullard currently serves as the director of the Environmental Justice Resource Center at Clark Atlanta University, and has been very active in the environmental

justice movement. His 1991 book, Dumping in Dixie: Race, Class, and Environmental Equity, is regarded as one of the founding studies indicating that environmental hazards disproportionately affect communities of color (Bullard, 1995:70).

An examination of Dr. Bullard's framework for environmental justice will serve to both further define what environmental justice hopes to accomplish, and provide more definitive guidance concerning how it should be set in motion. While this framework came to light after the publication of EO 12898, it preceded any forthcoming guidance from the CEQ, EPA, or any other Federal agencies. Therefore, together with the Principles of Environmental Justice, this framework will help provide more of an understanding of the meaning of environmental justice within the context of the EO.

The following discusses a framework which he developed in order for the government to appropriately address environmental justice issues. The framework is broken down into five steps required to ensure environmental justice. First, he states that legislation "modeled on past civil rights acts, should make illegal any environmental practices that disproportionately harm minorities" (Bullard, 1995:70-72) His second step involves a sort of preventive maintenance applied to the environment, "environmental threats should be eliminated so that harms can be prevented before they occur" (Bullard, 1995:73-75). Thirdly, the law should require the burden of proof of discrimination to be shifted away from the minority communities and toward the polluting industries (Bullard, 1995:76-77). Also addressing legal standards, the fourth step would require that the standard of "intent", which requires that the complainant prove discrimination was done intentionally, be eliminated (Bullard, 1995:78-79). The last step requires that "governments

should redress inequities by targeting resources to communities with the worst problems" (Bullard 1995:79-81). Each of these steps will be further discussed below.

While several bills have been introduced into Congress addressing various aspects of environmental justice, none have yet to be passed into law. Executive Order 12898, while not a law, may be considered as part of the first step in making it "illegal" to foster environmental practices which harm minorities disproportionately. This order reinforces what has been law since the passage of the 1964 Civil rights Act, which prohibits discriminatory practices in programs receiving federal financial assistance (Bullard 1995:72).

The second step revolves around pollution prevention. Dr. Bullard highlights that this should always be the preferred strategy of governments (Bullard 1995:73). Instead of focusing on treating the problem once it has developed, it makes more sense to focus on eliminating what is causing the problem. The contention that people of color and the poor bear the majority of these environmental problems points to an even greater burden. "If a community happens to be poor and inhabited by persons of color, it is likely to suffer from a 'double whammy' of unequal protection and elevated health threats" (Bullard, 1995:74). The EO does not address this pollution prevention theme explicitly.

The third and fourth steps within this framework specify what should be considered illegal, which is not addressed in the EO. Dr. Bullard explains that under the current system, individuals who challenge polluters must prove that they have been harmed or discriminated against. Because few poor or minority communities have the resources available to launch such a challenge, the burden of proof should be shifted to the polluters.

They should be responsible for proving that their operations are not harmful to human health, will not disproportionately affect minorities or the poor, and are nondiscriminatory (Bullard, 1995:76). Dr. Bullard also states that illegality should involve "disparate impact and statistical weight -- as opposed to 'intent' -- to infer discrimination" since proving discrimination is next to impossible (Bullard 1995:78).

The fifth and final step within Dr. Bullard's framework concerns redressing inequities. Resources should be used where environmental and health problems are the greatest, but should not be limited to using risk assessment only as the sole method for prioritization. He says, "Relying solely on proof of a cause-and-effect relationship as defined by traditional epidemiology disguises the exploitative way the polluting industries have operated in some communities and condones a passive acceptance of the status quo...[The polluting industries] can always hide behind 'science' and demand 'proof' that their activities are harmful to humans or the environment" (Bullard, 1994:79-80). While EO 12898 does not specifically address what should be done about existing inequities, it does serve to address what needs to be done in the future to prevent the propagation of inequities where minority and poor peoples are concerned.

Terms/Phrases Requiring Further Interpretation

The purpose of this section is to provide a working definition of key terms and phrases used throughout EO 12898. The following definitions were developed by the Interagency Working Group, and are contained in EPA draft guidance regarding

environmental justice (USEPA-c, 1996:7-9):

Minority: Individual(s) classified by Office of Management and Budget Directive No. 15 as Black/African American, Hispanic, Asian and Pacific Islander, American Indian, Eskimo, Aleut, and other non-white persons.

Minority Population: Minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

Low -Income Population: Two of the tests available for identifying low-income populations in an affected area are: (a) the Department of Health and Human Services poverty guidelines or (b) the Department of Housing and Urban Development statutory definition for very low-income for the purposes of housing benefits programs.

Disproportionately High and Adverse Human Health Effects: When determining whether human health effects are adverse and disproportionately high, agencies are to consider the following three factors to the extent practicable: (a) Whether the health effects, which may be measured in risks and rates, are significant, unacceptable or above generally accepted norms. Adverse health effects may include bodily impairment, infirmity, illness, or death; and (b) Whether the risk or rate of exposure by a minority population or low-income population to an environmental hazard is significant and appreciably exceeds or is likely to appreciably exceed the risk or rate to the general population or other appropriate comparison group; and (c) Whether health effects occur in a minority population or low-income population affected by cumulative or multiple adverse exposures from environmental hazards.

Disproportionately High and Adverse Environmental Effects: When determining whether environmental effects are adverse and disproportionately high, agencies are to consider the following three factors to the extent practicable: (a) Whether there is an impact on the natural or physical environment that significantly and adversely affects a minority community or low-income community. Such effects may include ecological, cultural, economic, or social impacts on minority communities or low-income communities that are interrelated to impacts on the natural or physical environment; and (b) Whether environmental effects are significant and are having an adverse impact on minority populations or low-income populations that appreciably exceeds or is likely to appreciably exceed those on the general population or other appropriate comparison group; and (c) Whether the environmental effects occur in a minority population or low-income population affected by cumulative or multiple adverse exposures from environmental hazards.

Differential Patterns of Consumption of Natural Resources: Differences in rates and/or patterns of fish, water, vegetation and/or wildlife consumption among minority populations or low-income populations, as compared to the general population.

With some of the key terms clarified, the scope narrows to examine environmental justice as it applies to the NEPA process. First, an overview of the NEPA process is outlined.

Overview of the NEPA Process

On January 1, 1970, the President signed the National Environmental Policy Act (NEPA), PL 91-190, into law. The main purpose of NEPA is to ensure that federal agencies consider the environmental consequences of their actions and decisions as they implement their missions (Jain, 1993:43). As set forth in the act, the legislation "will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment....and stimulate the health and welfare of man..." (Jain, 1993:43).

For "major Federal actions significantly affecting the quality of the human environment," an environmental impact statement (EIS) must be prepared that assess the proposed action and all viable alternatives. They are to be broad in scope, and should address the complete range of potential effects of the proposed action on human health and the environment. When there are socioeconomic impacts associated with significant physical environmental impacts, regulations established by the CEQ and EPA require that socioeconomic impacts be addressed in the EIS (USEPA-c, 1996:1).

How NEPA Applies to EO 12898

According to the law, an EIS must include the environmental impact of the proposed action, any potential adverse environmental effects, alternatives to the proposed action, consideration of the direct and indirect effects of environmental consequences, and documentation of any requirements for depletable resources (Jain, 1993:66-67). Because NEPA, via the EIS process, mandates consideration of the significant environmental effects of a proposed project, and requires public participation as part of its process, it is a procedural device for considering environmental justice when making decisions (Ross, 1994:1).

NEPA mandates a process (through creation of required EISs and EAs) in which a framework exists to consider the concerns of society at large overburdened by potential industrial pollution. Executive Order 12898 utilizes this framework to call attention specifically to the minority and low-income populations who may be disproportionately overburdened by industrial pollution. So, in accordance with NEPA, an agency is not only required to predict the environmental effects of a proposed action, it must also involve concerned parties in the decision-making process. The EO is an extension of (or a means to highlight) this process to include consideration of potential disproportionalities as well as ensuring minorities and low-income communities are included in the decision-making process.

Accompanying EO 12898, the Presidential Memorandum specifically calls for several

actions directed at NEPA-related activities (USEPA-c, 1996:3):

1. Each federal agency must analyze environmental effects, including human health, economic, and social effects, of federal actions, including effects on minority communities and low-income communities, when such analysis is required by NEPA.
2. Mitigation measures outlined or analyzed in EAs, EISs or Records of Decision (RODs), whenever feasible should address significant and adverse environmental effects of proposed federal actions on minority communities and low-income communities.
3. Each federal agency must provide opportunities for community input in the NEPA process, including identifying potential effects and mitigation measures in consultation with affected communities and improving accessibility of public meetings, official documents, and notices to affected communities.
4. In reviewing other agencies' proposed actions under Section 309 of the Clean Air Act, EPA must ensure that the agencies have fully analyzed environmental effects on minority communities and low-income communities, including human health, social, and economic effects.

In summary, federal agencies must analyze environmental, health, economic, and social effects of federal actions on minority and low-income communities, address significant and adverse environmental effects of proposed mitigation measures on minority and low-income communities, and improve the accessibility of public meetings, official documents, and notices to affected communities. For those EISs requiring review by the EPA, the EPA must ensure that the agencies have met the same requirements as mentioned.

The Meaning of Environmental Justice

Words and phrases in the English language often have their roots in other languages. When "transplanted" over to English, many of the words and phrases retain some or all of their original meaning, as defined in the language of origin. When placed in a given context, these words/phrases are relatively clear and understandable to the average person, since

they possess a meaning that is common to everyone. However, other words/phrases are also created to attempt to describe a new phenomenon, or to describe an old phenomenon from a new perspective. Often, the definitions for these new terms are concise and relatively straightforward. However, some terms are not so easily defined. In order to grasp their meaning, they must be explored in the context in which they developed.

The term, environmental justice, is a concept that is difficult to define. It does not have a simple definition, with a meaning common to everyone. In an attempt to comprehend the meaning of environmental justice, it has been explored in the context in which it has developed throughout this chapter. While the meaning of environmental justice will be confined to the USEPA definition mentioned previously for purposes of answering the second and third research questions, the meaning of this term in the broader sense is summarized below.

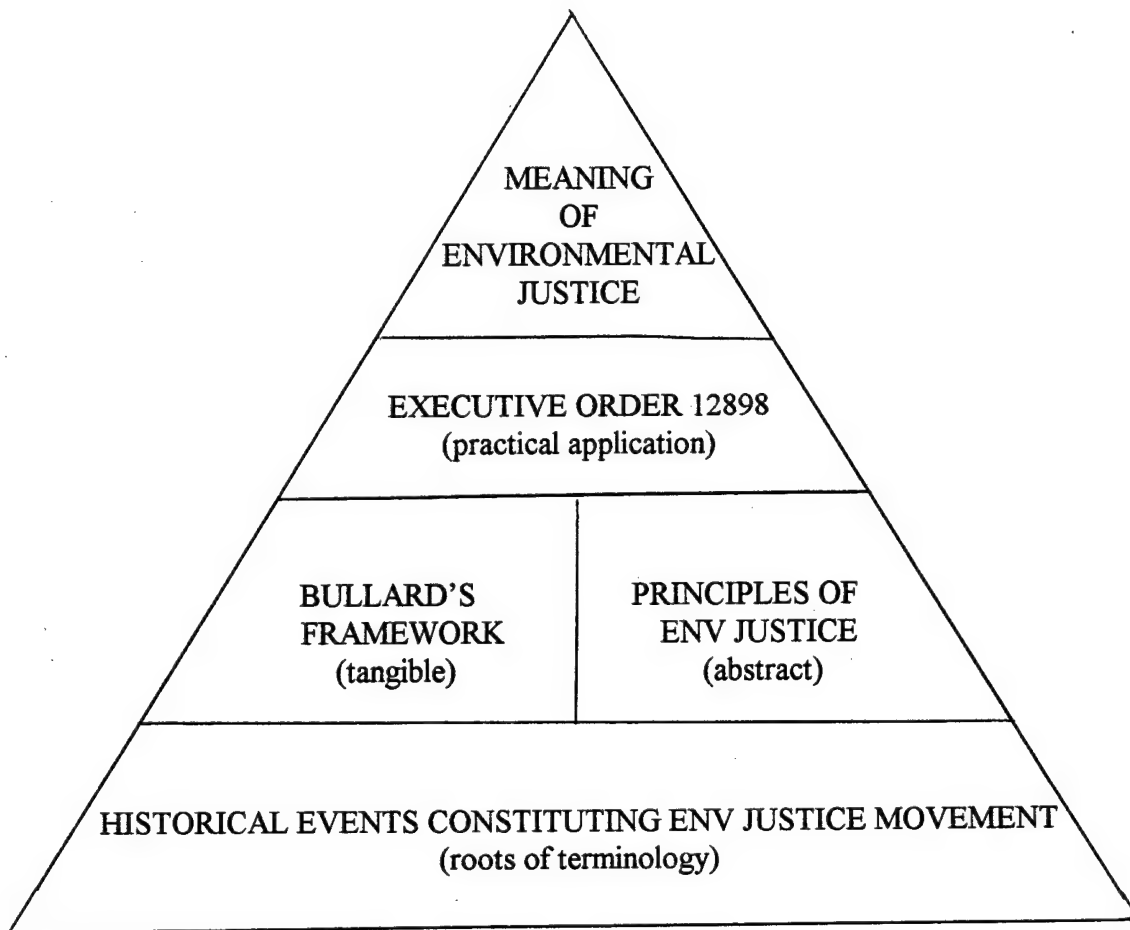


Figure 2-1: Meaning of Environmental Justice Pyramid

Referring to Figure 2-1, Meaning of Environmental Justice Pyramid, the various components are arranged in the shape of a pyramid to demonstrate the relationships between them. At the base of the pyramid are the historical events constituting the environmental justice movement, which is where the roots of the environmental justice concept and related terminology originated. Social rights activists exposed a pattern of

unequal distribution of negative environmental consequences amongst people based on race, ethnicity, and social class. Studies were conducted verifying that the majority of the environmental burden, such as the siting of noxious facilities, landfills, and incinerators, was being placed in minority and/or low-income communities. Equal distribution, without bias or prejudice, of these environmental burdens was demanded -- the foundations of environmental justice were established.

Building on this movement, two works are presented in the Literature Review to reflect both far reaching, or abstract, meaning of environmental justice, as well as a more tangible meaning of environmental justice. These are represented in the pyramid as the next level as Principles of Environmental Justice and Dr. Bullard's framework for environmental justice, respectively.

On the more abstract or all-encompassing end of the spectrum are the Principles of Environmental Justice, as they are stated from the Proceedings to the First National People of Color Environmental Leadership Summit. Most of the language used is esoteric, based on concepts such as universal rights and justice. It speaks to re-establishing "our spiritual interdependence to the sacredness of our Mother Earth..." and the right to be free from ecological disasters. It demands "public policy be based on mutual respect and justice for all peoples, free from any form of discrimination or bias." It calls for a universal protection to a clean environment and affirms the "fundamental right toenvironmental self-determination of all peoples." It acts as a sort of blueprint for a utopian society based on these principles of environmental justice.

Dr. Bullard, one of the leading figures in the realm of environmental justice, created a framework for the government to appropriately address environmental justice issues (Bullard, 1995:73-75). This framework serves to place environmental justice in a more tangible light, by addressing what should be done in order to make environmental justice a reality within the context of our government. While this framework does not specify environmental justice implementation procedures, it does focus on a course of action. It calls for legislation that would outlaw environmental practices that disproportionately harm minorities, require the burden of proof of discrimination to be shifted away from minority communities and toward the polluting industries, and the elimination of the standard of "intent" requiring the complainant to prove discrimination was done intentionally. Dr. Bullard also addresses pollution prevention and compliance concepts within his environmental justice framework by stating, "environmental threats should be eliminated so that harms can be prevented before they occur", and "governments should redress inequities by targeting resources to communities with the worst problems"(Bullard 1995:79-81).

The third level of the pyramid, moving up from the base, is EO 12898, which is the federal government's attempt to mandate the consideration of environmental justice in federal activities, by requiring it in the policies and practices of all Federal agencies. The Memorandum explicitly states the intentions of the EO: to focus Federal attention on the environmental and human health condition in minority and low-income communities, promote nondiscrimination in Federal programs, and to provide minority and low-income communities the opportunity to access public information and participate in issues relating to human health and the environment. While the Principles of Environmental Justice and

Bullard's framework call more attention to the plight of people of color, the EO explicitly addresses both minority and low-income populations in the quest for environmental justice.

All of these components, the historical events constituting the environmental justice movement, Principles of Environmental Justice, Bullard's framework, and EO 12898, act in concert to form the meaning of environmental justice, which sits at the pinnacle of the pyramid. This discussion has sought to answer the first research question: what is environmental justice?

Summary

This chapter provided the background information concerning some of the pertinent issues related to this research, with the focus on providing background and answering the first research question. The first section included an introduction to the meaning of environmental justice along with related terminology, and a historical perspective of the environmental justice movement leading up to the publication of EO 12898.

The second section completed the answer to the first research question and built part of the foundation used to answer the second and third research question. It began with a general description of the directives set forth within EO 12898. To aid in understanding the meaning of environmental justice and the intent of EO 12898, the Principles of Justice as developed by the First National People of Color Environmental Leadership Summit were discussed. Next, a framework for building environmental justice into government developed by Dr. Bullard was presented.

Returning to EO 12898, the focus narrowed to portions of the EO aimed at dealing with the National Environmental Policy Act (NEPA), with an accompanying overview of the NEPA process. Terms and phrases used in the EO needing further clarification and/or definition were explored. This portion of the literature search provides background for answering the second and third research questions.

Lastly, the first research question was answered: what is environmental justice? Figure 2-1 depicted the different components of the meanings associated with environmental justice, as explored previously, and expressed the relationships between them. An accompanying discussion served to address the meaning of environmental justice.

III. Methodology

Chapter Overview

This chapter outlines the research approach used to collect and analyze information regarding the analysis of AFCEE's environmental justice methodology. The methodology used to answer the research questions includes the following:

- a. data collection,
- b. environmental justice methodology assessment by evaluation categories/criteria,
- c. assessment of an application of environmental justice methodology by evaluation categories/criteria.

This approach is driven by the need to answer the last two research questions:

2. How well does AFCEE's methodology incorporate environmental justice issues into their NEPA processes as required by EO 12898?
3. How well does an application of AFCEE's environmental justice methodology incorporate environmental justice issues into their NEPA processes as required by EO 12898?

Also included is a discussion of limitations to the approaches used.

Data Collection Methodology

Two concepts of data collection, described by Creswell (Creswell, 1994:150-151) were the focus of data collection for this research. These include documents and interviews.

Documents. The majority of the documentation included (a) the draft methodology incorporating environmental justice into the NEPA process as developed by AFCEE, (b) EO 12898 and accompanying Presidential Memorandum, (c) EPA and CEQ guidance regarding environmental justice in NEPA process, and (d) related articles. Other documentation, such as correspondence, meeting minutes, and the FEIS for March AFB BRAC action, were reviewed. While not in direct support of answering the three research questions, documentation from other Federal agencies' effort to address environmental justice was reviewed and briefly discussed in the Appendices.

Interviews. In order to gain insight into AFCEE's environmental justice methodology, seven interviews were conducted with personnel who were instrumental to the development of the methodology. All but one individual was interviewed in person. The interview was structured with many open-ended questions in order to gain the most information from each individual's experience in developing the AFCEE methodology. The interviews were structured to allow interviewees to relate their role in the process of methodology development, communicate their interpretation of EO 12898, explain the rationale behind the AFCEE methodology, share their perspectives on the usability of the methodology, and explore the "spirit" of EO 12898. "At the root of in-depth interviewing is an interest in understanding the experience of other people and the meaning they make of that experience" (Siedman, 1991:3).

The interview data does not directly answer the two remaining research questions; instead it provides support and background for how AFCEE's methodology was developed. The interview data enabled the researcher to provide the foundation from

which the AFCEE methodology was developed, which, in turn, is the object of assessment.

Answering the Research Questions

Following the data collection, a framework consisting of evaluation categories and associated criteria was developed to answer the two remaining research questions.

AFCEE's Draft Methodology - Environmental Justice Analysis was evaluated against the evaluation criteria in order to answer the second research question. The third research question was answered by evaluating an application of AFCEE's methodology, the March AFB Disposal EIS, also using the same evaluation criteria used previously. Rationale for choosing using these evaluation tools follow.

Development of Evaluation Criteria Used to Assess AFCEE Methodology

The following evaluation criteria are developed in order to analyze the AFCEE environmental justice methodology in relation to the intent of EO and subsequent draft guidance set forth by EPA and CEQ. Instrumental in developing the framework for analysis is a paper written by Cory Wilkinson, a member of the National Association of Environmental Professionals, which has been submitted to the Army Environmental Policy Institute (AEPI) for future publication (Wilkinson, 1996). While the majority of the framework for analysis builds from Wilkinson's paper entitled "Three Key Components of an Environmental Justice Impact Assessment", some categories/subcategories were added/deleted based upon interpretation of EPA and CEQ draft guidance, IWG guidance,

and EO 12898. This draft guidance is assumed to accurately reflect the requirements of EO 12898, and is considered to serve as the standard by which AFCEE's methodology and its' application are analyzed.

Wilkinson's framework examines aspects of environmental justice impact assessment through the NEPA process and focuses on demographic assessment, impact assessment, and community involvement. He acknowledges that the methods and techniques for addressing environmental justice among federal agencies vary, but generally include incorporation of environmental justice considerations into the NEPA planning and decision making process.

Wilkinson's framework was chosen to develop evaluation criteria based on its comprehensive discussion regarding how environmental justice should be incorporated into the NEPA process. His work also incorporates some of the CEQ and EPA guidance for the integration of environmental justice into the NEPA process. The CEQ has issued draft guidance, in cooperation with other agencies, to assist agencies in the integration of environmental justice into their NEPA processes (CEQ 1996). Also, the EPA recently published draft guidance for implementation of environmental justice goals into the NEPA process (EPA 1996).

The evaluation criteria are derived from Wilkinson's paper, based on what constituted the highlights of each component (demographic analysis, impact assessment, and community involvement). This was a subjective interpretation on the part of the researcher. A separate category is added to the framework: the integration of demographic analysis and impact assessment. Due to the relative importance of the

integration between the two components, it is given a distinct category and associated criteria.

The evaluation criteria used in this research analysis are divided into four categories: demographic analysis, impact assessment, integrating demographic analysis and impact assessment, and community involvement. The integration of demographic analysis and impact assessment is broken out as a separate category due to the importance of such integration. The following is a description and discussion of the categories/criteria used to later evaluate how well AFCEE's Draft Methodology - Environmental Justice Analysis, and an application of that methodology in the March AFB Disposal FEIS, incorporate environmental justice issues into the NEPA process.

I. DEMOGRAPHIC ANALYSIS

A. Identification of Exposure Pathways

1. Knowledge of potential pathways needed to determine the geographic area for which population demographics are needed.

One component of a NEPA environmental assessment involves the analysis of population demographics, specifically focusing on minority and low-income communities. In order to best determine the geographic area for which population demographics are needed, the analysts should have extensive knowledge of potential impacts and exposure pathways.

B. Data Sources

1. Data selected accurately portray the current demographics in area under consideration.

The EPA advises against selecting geographical areas that "artificially dilute or inflate" the affected population. Commonly used geographic areas include political boundaries such

as Census Blocks and Census Tracts as defined by the US Bureau of the Census, and ZIP Code areas as defined by the US Postal Service. In either approach, analysts should be careful to ensure that the data set selected accurately portrays the current demographics in the area under consideration. Data aggregated at a larger geographic scale may be appropriate for actions that may have wide-spread impacts. If the focus of analysis is on a local scale, smaller data sets may be more appropriate.

C. Population Profile

1. Identification of minority populations consistent with IWG guidance.
2. Identification of low-income populations consistent with IWG guidance.
3. Attempts made to identify the existence of any localized high concentrations of minority communities or low-income communities that may or may not be apparent by examination of the data. (Field verification, enhanced community involvement)
4. Examination of parameters such as age, sex and population density been examined.
5. Identification of communities reliant on subsistence living.
6. Analysis is sensitive to cultural factors where Native American communities may have cultural and/or sacred sites that may be affected.

Data on minority populations are available through the Census of Population and Housing as provided by the US Bureau of the Census. A useful compilation of Census data for an environmental justice demographic analysis is found in a processed set of data known as Summary Tape File (STF) 3A (Census 1991). STF-3A files contain sample data weighted to represent the total population and include data on age, Hispanic origin, household type, income, race, sex, and many other items. Data are aggregated for different areas from the largest area (the entire United States) to the smallest (a Census Block). Other Census data sets are available in the Census of Population and Housing (CPH)-L Tables, and Current Population Reports.

Data on low-income populations are also available using the US Census data. The US Bureau of the Census Current Populations Reports, Series P-60 on Income and Poverty provide current projects of minority populations based on the 1989 Census data. The Census Bureau derives an annual determination of poverty status based on the Consumer Price Index. A summary of Census poverty tables is provided in the Census of Population and Housing, 1990; Summary Tape File 3.

CEQ suggests two other sources of data to identify low-income populations: the Department of Health and Human Services (HHS) poverty guidelines, or the Department of Housing and Urban Development (HUD) statutory definition for very low-income.

Both the CEQ and EPA advise that analysts should go beyond the surface of the data and look across the population profile for any pockets of minority communities or low-income communities that could be affected. Parameters such as age, sex, and population density should be examined. This approach will help identify any sub-groups that may be more sensitive to the potential impacts. This kind of examination of the population profile includes looking for people who may have certain dietary habits such as consumption of a particular resource, or communities based on subsistence living. Sensitivities should also include cultural factors where Native American communities may have cultural and sacred sites that may be affected.

II. IMPACT ANALYSIS

A. Disproportionately High and Adverse Effects

1. Interpretation of "disproportionate" consistent with draft EPA guidance.
2. Concerning the distribution of effects, consideration these factors:
 - a. Whether impact has significant or adverse effects or is above generally accepted norms;

- b. Whether those effects appreciably exceed or are likely to appreciably exceed those of the general population or other appropriate comparison group;
- c. Whether the community is already affected by cumulative or multiple adverse exposures from other environmental hazards.

Because the EO calls for an examination of disproportionately high and adverse effects, the impact of a proposed action must be examined with respect to the resulting effect on the low-income communities and minority communities as discussed in the Demographic Analysis section. As directed by the Presidential Memorandum, effects must be examined in three categories: human health effects, environmental effects, and economic/social effects. Two broad types of effects must be analyzed: disproportionately high and adverse effects; and multiple and cumulative effects.

The analysis of the distribution of the effects calls for judgment, but suggests some level of comparative analysis among the populations to determine if any group of people would experience a greater share of the impacts.

B. Multiple and Cumulative Effects

1. Consideration of factors such as proximity to other emission sources, other environmental contamination, and increased susceptibility to health effects due to existing pollution.

NEPA analysis requires examination of direct, indirect, and cumulative effects. In an environmental justice context, special emphasis is placed on effects from multiple and cumulative exposures which are exposures from multiple pollutants in one or more locations through various pathways over a period of time. As part of the definition of environmental justice, the EPA says, "No racial, ethnic or socioeconomic group should bear a disproportionate share of the negative environmental consequences" To meet

this definition, the environmental justice impact assessment should closely tie to the NEPA cumulative impact assessment of other past, present, and reasonably foreseeable future federal and non-federal activities occurring in the defined region of influence.

C. Social Impacts

1. Examination of factors such as possible conflicts with traditions, customs, religious practices, or Native American sovereignty issues.

Social impacts, along with human health and environmental effects, are part of the environmental justice impact assessment. Social impact assessment involves knowing who is affected, what will happen to those affected, what will change, and how the actions will affect social systems and their stability. Social impact assessment includes the examination of factors such as: possible conflicts with traditions, customs, religious practices, or Native American sovereignty issues; degradation of the aesthetic values; the possibility of community disruption or segmenting; and potential impacts to the community economic structure.

III. INTEGRATING DEMOGRAPHIC ANALYSIS AND IMPACT ANALYSIS

- A. Aggregation/disaggregation of demographic data commensurate with the degree/extent of impacts.
- B. Identification of existence of disproportionality in the area impacted.
- C. Mitigation measures

Analysis of the distribution of impacts is a key step in an environmental justice impact assessment. Such as assessment requires both knowledge population demographics and impact assessment data. Although there are many tools available for data analysis and comparison, the geographic information system (GIS) is an effective tool for spatially displaying the two data sets. The CEQ states that such a spatial display of both biophysical and demographic data can provide the agency and the public with an especially effective visualization of the distribution of impacts (CEQ, 1996:11).

IV. COMMUNITY INVOLVEMENT

- A. Identification of key individuals who can represent various stakeholder interests.
- B. Inclusion of information-gathering techniques to overcome language/cultural barriers, technical background and literacy.

Although NEPA has regulatory requirements for public participation, the EO heightens the public participation requirements. With this increased emphasis on involvement of the affected communities, the public participation process may require increased forethought and planning. Enhances public involvement should be prevalent throughout the NEPA process from before scoping to after the decision.

EPA has identified several opportunities for enhanced public involvement including: identify key individuals who can represent various stakeholder interests; ensure that information-gathering techniques include modifications to overcome language/cultural barriers, technical background, and literacy; regionalize materials to ensure cultural sensitivity and relevance. This process includes translating documents and hearing for communities that are limited in the English language, and ensuring that documents and hearings are understandable and readily accessible.

These evaluation categories will be used to assess AFCEE's environmental justice methodology in terms of its Draft Methodology and actual application of it, the March AFB Disposal FEIS.

Limitations

Due to the nature of the problems presented by the focus of this research, a qualitative approach is utilized. "The data developed by qualitative methods originate when a

researcher figuratively puts brackets around a temporal and spatial domain of the social world" (Van Maanen, 1983:9) Executive Order 12898 came into existence only two and a half years ago, so all of the data surrounding Federal agency responses to that EO is relatively new and incomplete. Without clear definition or guidance on how AFCEE, and other Federal agencies, were to incorporate environmental justice issues into the NEPA process, no true "benchmark" methodologies existed that could have aided in the analysis of the methodologies in question. (It must be noted here that AFCEE's methodology assessed in this study was developed prior to the publication of EPA and CEQ draft guidance.) Therefore, building on an existing framework derived from Wilkinson's work, evaluation criteria were developed to reflect the requirements of EO 12898 as interpreted by EPA and CEQ guidance.

Summary

This chapter specified the research approaches used for data collection, methodology assessment by evaluation categories and assessment of an application of that methodology using the same evaluation categories. This methodology will be used in **Chapter IV**.

Analysis to directly answer the last two research questions.

IV. Analysis

Chapter Overview

This chapter begins by discussing AFCEE's role in the process to develop a methodology incorporating environmental justice issues into NEPA documentation. This information is obtained primarily from interviewing key personnel instrumental to the process of developing an environmental justice methodology. Two evaluations of AFCEE's methodology follow: one based on AFCEE's Draft Methodology: Environmental Justice Analysis (Part 1), and the other based on an application of that methodology in the March AB Disposal FEIS (Part 2). Part 1 is driven by the second research question:

2. How well does AFCEE's methodology incorporate environmental justice issues into their NEPA processes as required by EO 12898?

Both evaluations center around specific categories developed in the previous chapter. Part 2 of the analysis focuses on assessing a product of employing AFCEE's environmental justice methodology, a completed Base Realignment and Closure (BRAC) EIS. It evaluates an application of AFCEE's environmental justice methodology: the March AFB Disposal FEIS in order to answer the third and last question:

3. How well does an application of AFCEE's environmental justice methodology incorporate environmental justice issues into their NEPA processes as required by EO 12898?

Both Part 1 and Part 2 of the analyses are purely descriptive in nature. Following the examination of AFCEE's Draft Methodology and its application, a discussion of limitations pertaining to the documents under review conclude this chapter.

AFCEE's Role in the Process to Develop a Methodology

AFCEE was tasked by AF/CE and Air Force Base Conversion Agency (AFBCA), formerly the Air Force Base Disposal Agency (AFBDA), to develop the requisite environmental planning documents and related studies to support the reuse of Air Force bases targeted for closure or realignment under the BRAC acts. AFBCA, their largest customer, had tasked AFCEE to insert environmental justice (EJ) analysis into the remainder of Round III and Round IV BRAC NEPA documents.

With little guidance regarding how to implement the tasking, other than the President's Executive Order and his Memorandum on the subject, AFCEE set forth to develop their own methodology to incorporate EJ analysis into NEPA documents for the remainder of Round III and Round IV BRAC. Late in the process, the DOD Working Group published guidance that was geared more for stating policy than giving direction on how to implement the tasking.

Individuals within AFCEE/ECP, AFCEE/JA, USAF/CEV, AFBCA, and Earth Tech, an environmental firm contracted by AFCEE to write BRAC EISs, were all involved in the development of the AFCEE EJ methodology early in the process. Following a series of detailed brainstorming sessions, Earth Tech developed the first draft of the methodology based on guidance given by AFCEE. The idea was to start off with a loose framework that was arguably workable, cost-effective and met the basic tasking of the President, then develop the process as things progressed.

After a straw man process was developed enough to present internally, AFCEE/JA personnel got involved in the review process. Their goal was to assist in the development

of a process that would withstand close scrutiny from Congress, the President, the public, and interested parties. The assumption was that there was unlikely to be a judicial challenge to the methodology since there was not legal standing for the public or private parties to seek review of the implementation of an Executive Order.

The AFCEE methodology was built from scratch. AFCEE personnel had to wrestle with the interpretation of EO 12898 due to the fact no definitive guidance was published at that stage. With great difficulty and little certainty, they had to define key terms used in the EO that were left undefined. The terms "environmental justice," "disproportionately high and adverse human health or environmental effects," and "minority or low-income populations" were among those critical terms and phrases left undefined. AFCEE also had to determine where and what data was available that could be used for analysis. As stated in EO 12898, "Each Federal agency, whenever, practicable and appropriate, shall collect, maintain and analyze information on the race, national origin, income level..." These were some of the major challenges facing development of an environmental justice methodology.

AFCEE's Draft Methodology - An Overview

AFCEE's methodology is organized into three sections: an introduction, methodology, and environmental justice impact analysis section. The introduction outlines the intent of the guidance, and the briefly describes the applicable requirements set forth in EO 12898. The methodology section describes the process used to identify low-income and minority populations, introduces key terminology, outlines the determination of

minority and low-income populations for environmental justice, and covers public outreach efforts. The third and last section, environmental justice impact analysis, involves determining the areas where adverse environmental impacts from the proposed project would occur, and if these areas overlie any areas containing disproportionately high low-income or minority populations.

The basic premise of AFCEE's methodology is as follows. First the project is defined. The area where the majority of environmental impacts associated with an action or its alternatives occur is defined as the Region of Comparison (ROC), for which minority and low-income population percentages are determined using Census data. This will be used later for comparison purposes in the determination of disproportionality. The minority and low-income population percentages of each census tract or appropriately defined area are compared to the ROC population percentages. (If the census tract contains just one percent more of a minority or low-income population when compared to the ROC, it is considered to be disproportional.) If it is determined that any low-income/minority populations are in the ROC, public outreach is conducted to those potentially affected populations. If it has been determined that the project or its alternatives will have adverse off-base impacts, the Resource Adverse Impact Footprint (RAIF) is defined. This is the area, or footprint, encompassing the adverse impacts. If the RAIF overlays any area, usually aggregated by census tracts, that contains a disproportionate percentage of minority or low-income populations, this constitutes a disproportionality and is identified as such. At this point, the project or proposed alternatives are considered to possess

environmental justice impacts, and mitigation measures must be outlined to address minority and low-income populations specifically.

Evaluation of AFCEE's Environmental Justice Methodology - Part 1

For Part 1 of the analysis, AFCEE's Draft Methodology - Environmental Justice Analysis, contained in Appendix D, is evaluated based on the criteria established in Chapter III. This draft guidance is assumed to accurately reflect the requirements of EO 12898, and is considered to serve as the standard by which AFCEE's methodology is analyzed. The evaluation categories used in this part of the analysis are organized within a framework consisting of four segments: demographic analysis, impact analysis, integration of demographic and impact analysis, and community involvement. For each category/subcategory, AFCEE's methodology is first discussed, followed by comments regarding how well it meets the requirements of EO 12898 (based on EPA, CEQ, and/or IWG draft guidance where applicable).

I. DEMOGRAPHIC ANALYSIS

A. Identification of Exposure Pathways

1. Knowledge of potential pathways (air, water, land) and receptors needed to determine the geographic area for which population demographics are needed.

Since the developers of AFCEE's methodology are part of a world-wide Architect and Engineering firm specializing in environmental documentation requirements, it is assumed that they possess the abilities to discern potential pathways resulting from

impacts to the environment, and can determine the geographic area for which population demographics are needed.

This criteria can not be fully explored in the context of examining just the methodology, since Earth Tech will not be the only firm executing environmental documentation requiring use of this methodology. While the qualifications regarding the capabilities of the analysts are not required to be contained within the methodology, it is assumed that only those firms fully capable of this type of analysis will pass through the contractor selection process.

B. Data Sources

1. Data selected accurately portrays the current demographics in area under consideration.

AFCEE's Draft identifies two sources of data for use in environmental justice analysis: the most recent US Bureau of the Census data (Summary Tape File 3), and the Topographically Integrated Geographic Encoding and Referencing (TIGER) files. Both sources contain statistics for three census jurisdictions: state, county, and either block numbering areas (BNAs) or census tracts. The Summary Tape File 3 provides population and poverty status statistics. Tables in Appendix D, pages D-2-5 through D-2-7 and pages D-2-8 to D-2-9 show examples of these statistics: Hispanic Origin by Race, and Poverty Status in 1989 by Race by Age, respectively. These statistics are retrieved from a CD-ROM, which can be obtained through the US Bureau of Census within the US Department of Commerce.

The TIGER files show the BNAs or census tracts in a county in graphic form using the Geographic Information System (GIS). See Appendix D, page D-2-4 depicts a sample

plot of the BNAs/census tracts within a county. Use of this graphic format is key to the impact analysis, and the integration of demographic and impact analysis, which is discussed later in the evaluation.

AFCEE's use of these data sources falls in line with guidance given in the Draft Guidance - Environmental Justice in EPA's NEPA Compliance Analysis. The EPA recognizes that census demographic information can significantly enhance NEPA analytical capabilities, but warns that there are limitations associated with the accuracy of census information due to the way in which the data are collected and tabulated. They advise that census data is useful for the screening analyses, but the results should always be validated via public participation mechanisms, other data sources, or by touring the community and talking with local officials and community leaders (USEPA, 1996:50-51). AFCEE's methodology does incorporate the use of these other mechanisms (which will be discussed further in the analysis).

AFCEE's use of the TIGER files (GIS) also is recommended by the EPA Draft Guidance. The EPA recommends the use of maps, aerial photographs, and the GIS for locating areas where potential environmental justice issues may exist. Local maps and aerial photographs provide a general overview of the locations of minority or low-income populations or communities and the proximity of sites and facilities of potential concern to these populations or communities. They also can identify key natural resources that may be affected (USEPA, 1996:49).]

C. Population Profile

1. Identification of minorities and minority populations consistent with IWG

guidance.

AFCEE's methodology defines *minority populations* as "persons designated as Black; American Indian, Eskimo, or Aleut; Asian or Pacific Islander; Other; and of Hispanic origin in census data" (AFCEE, 1996:A-1). IWG guidance gets more specific by differentiating between the definitions of *minority* and *minority populations*. It is assumed that AFCEE's definition of minority populations is meant to address the definition of *minority* as described in IWG guidance, since AFCEE does address how *minority populations* should be identified. Keeping in mind that assumption, this is consistent with the IWG's definition of minority. (One exception involves semantics: AFCEE lists "Other" versus IWG guidance specifies "other non-white persons".)

Guidance developed by the IWG makes allowances for two different ways to identify/define *minority populations* :

- a. the minority population of the affected area exceeds 50 percent, or
- b. the minority population percentage of the affected area is meaningfully greater than the minority percentage in the general population or other appropriate unit of geographic analysis.

The guidance also specifies that a minority population exists if there is more than one minority group present and the minority percentage, as calculated by aggregating all minority persons, meets one of the above thresholds.

AFCEE's methodology complies to some degree with the second option of minority population identification specified by the IWG guidance. However, the words, "meaningfully greater than the minority population percentage in the general population..."

allow for a great deal of latitude in interpretation. AFCEE has interpreted this to mean that should the percentage of the minority population being affected in a BNA/census tract be greater than the corresponding minority population percentage of what is defined to be the "general population", these minority populations should be identified as such.

2. Identification of low-income populations consistent with IWG guidance.

AFCEE defines low-income population as "persons below the poverty level, designated as \$12,674 for a family of four in 1989", utilizing the most recent Census of Population and Housing data.

IWG draft guidance on low-income refers to both the Department of Health and Human Services (HHS) guidelines and the Department of Housing and Urban Development's statutory definition for very low-income for the purposes of housing benefits programs. Low-income is defined by the HHS to mean that a household's median annual income falls below HHS's poverty guidelines. These guidelines are published each year in the Federal Register by HHS. The guidelines are a simplification of the poverty thresholds that are updated each year by the Census Bureau. This guidance provides two ways to calculate low-income, but recommends that agencies should apply the test that most accurately reflects the relative cost of living in the particular geographic area under consideration (USEPA, 1996:7,11).

3. Attempts made to identify the existence of any localized high concentrations of minority communities or low-income communities that may or may not be apparent by examination of the data. (Field verification, enhanced community involvement)

AFCEE's methodology does entail ground truthing (or field verification), but only in order to determine land uses, and not to verify income or minority status. However,

through public outreach and advertising during the scoping process, AFCEE hopes to capture the existence of these localized high concentrations, or "pockets" of minority or low-income communities.

EPA guidance suggests that analysts should attempt to identify whether high concentration "pockets" of minority or low-income populations are evidenced in specific areas. Since census data can only be disaggregated to certain levels (census tracts, BNAs), "pockets" of minority or low-income populations may be missed in the analysis. EPA guidance recommends non-traditional data gathering techniques, including outreach to community-based organizations and tribal governments early in the screening process.

4. Examination of parameters such as age, sex and population density.

AFCEE's environmental justice methodology examines only age, as it is delineated within the Census of Population and Housing Summary Tape File 3. Other parameters are not included.

EPA guidance seems to take the stance that the more information provided to the decision maker, the better. By including parameters such as age and sex in the demographic analysis, sensitive subpopulations may be exposed. Population density is also important when deciding between alternatives, since one alternative may affect a larger number of people residing in a smaller area versus another alternative affecting fewer people in a larger area.

5. Identification of communities reliant on subsistence living.

AFCEE's methodology does not specifically address identification of communities reliant on subsistence living. However, it does include impacts to fish and wildlife where

these resources are consumed for subsistence as an example of a potential environmental justice impact.

EPA guidance stresses the importance of identifying the "affected community".

Identification of communities reliant on subsistence living is facilitated by increased efforts to reach the public. This will be further discussed in segment IV, Community Involvement.

6. Analysis is sensitive to cultural factors where Native American communities may have cultural and/or sacred sites that may be affected.

AFCEE's methodology does not specifically address this, but does advise that impacts to cultural or religious sites is an example of a potential environmental justice impact.

EPA and CEQ guidance again rely on the increased public outreach to identify Native American communities possessing cultural and/or sacred sites that may be affected. This will also be discussed further in segment IV.

II. IMPACT ANALYSIS

A. Disproportionately High and Adverse Effects

1. Interpretation of "disproportionate" consistent with draft EPA guidance.
2. Concerning the distribution of effects, consideration of these factors:
 - a. Whether impact has significant or adverse effects or is above generally accepted norms;
 - b. Whether those effects appreciably exceed or are likely to appreciably exceed those of the general population or other appropriate comparison group;
 - c. Whether the community is already affected by cumulative or multiple adverse exposures from other environmental hazards.

In order to describe AFCEE's interpretation of "disproportionately high and adverse", it is necessary to understand some terminology they developed in order to define the areas

under comparison. This includes Region of Comparison (ROC) and Resource Adverse Impact Footprint (RAIF). There is some confusion regarding the use of both Region of Influence (ROI) and RAIF. The term, ROI, is used in the first part of the methodology, but the term, RAIF, is used in the latter part of the methodology. For the purposes of this analysis, they have the same meaning.

The ROC is defined as the smallest political unit (city, township, or county) that encompasses the area in which the majority of environmental impacts associated with an action or its alternatives would occur. A RAIF is the footprint of projected adverse impacts on a resource based on a planned activity. The ROC is the smallest political unit that encompasses all the RAIFs for the resources analyzed. The overall percentages of low-income and minority populations within the ROC are used as the baseline percentage against which the percentages within each BNA/census tract. If the percentage of minority or low-income persons for a BNA/census tract is greater than the corresponding ROC percentage, the BNA/census tract is identified as being disproportionately high for that factor. See Appendix, page D-2-14, for the table depicting the determination of disproportionality, and Appendix D-2-15 for a figure of a map showing those BNA/census tracts identified as possessing higher low-income or minority populations when compared to the ROC.

The IWG guidance addresses the issue of disproportionality as it relates to both human health effects, and environmental effects. In determining whether either of these effects are adverse and disproportionately high, they recommend consideration of three factors:

- a. For human health effects, whether the health effects are significant, unacceptable, or above generally accepted norms. For environmental effects, whether there is an impact on the natural or physical environment that significantly and adversely affects a minority or low-income community.
- b. For human health effects, whether the risk or rate of exposure by a minority or low-income population to an environmental hazard is significant and appreciably exceeds or is likely to appreciably exceed the risk or rate to the general population or other appropriate comparison group; for environmental effects, whether environmental effects have the same effects as stated above for human health.
- c. For human health effects, whether health effects occur in a minority population or low-income population affected by cumulative or multiple adverse exposures from environmental hazards; for environmental effects, whether environmental effects occur in the same fashion as stated above for human health.

Factor (a) seems to seek identification of ANY effects, human health or environmental, that are above generally accepted norms or impact the physical or natural environment adversely. It is interesting to note that the IWG specifically calls out minority/low-income populations when considering environmental effects, but not for human health. AFCEE's methodology does not address disproportionality in this light.

Factor (b) addresses the potential existence of a disparity between the human health or environmental effects felt by minority/low-income populations when compared to the same effects felt by an appropriate comparison group. This is the factor that AFCEE's methodology rallies around. When identifying disproportionately high low-income and

minority areas, the percentage of each of these groups within each BNA/census tract is compared to the overall ROC (assigned as the appropriate comparison group) percentage for these categories. If the percentage of minority or low-income persons for a BNA/census tract is greater than the corresponding ROC percentage, the BNA/census tract is identified as being disproportionately high for that factor. See Table 4-3 for an example of how census tract percentages of minority and low-income compare to the ROC, which in this case is the county level. While AFCEE's methodology does not explicitly state at what level of difference (1%, 1/10%, 1/100%) between the ROC and the BNA/census tract constitutes a disproportionality, it can be inferred from this table that even 1/100% difference (since this is the degree of measurement used) could constitute a disproportionality. However, the omission of an exact definition may be a deliberate omission. By not clearly defining what makes a comparison disproportionate, the methodology presents all the information to the decision makers, thereby allowing them to draw their own conclusions.

Factor (c) serves as an umbrella to capture human health and environmental effects that are cumulative or multiple adverse exposures occurring in minority/low-income populations. AFCEE's methodology does not address this aspect.

B. Multiple and Cumulative Effects

1. Consideration of factors such as proximity to other emission sources, other environmental contamination, and increased susceptibility to health effects due to existing pollution.

AFCEE's methodology does not address multiple and cumulative effects. EPA draft guidance says that special emphasis should be placed on effects from multiple and

cumulative exposures which are exposures from multiple pollutants in one or more locations through various pathways over a period of time. Therefore, other past, present and reasonably foreseeable future activities occurring in the defined region of influence should be examined.

C. Social/Socioeconomic Impacts

1. Examination of factors such as possible conflicts with traditions, customs, religious practices, or Native American sovereignty issues.

AFCEE's methodology does not specifically address factors such as these. However, it does list impacts to cultural or religious sites as a potential environmental justice impact. EPA guidance recommends formally requesting the affected Indian Tribe(s) to participate as a cooperating agency through the analysis. Specific factors to consider in such situations include resource allocation and assumption of programs by tribes, religious use of natural resources, and government to government relationship with affected Indian Tribes.

While CEQ regulations note that economic or social effects alone to not trigger an EIS, if environmental justice concerns are identified during the screening analysis or during the development of the EA, the potential socioeconomic impacts should be evaluated. Therefore, even in the absence of significant physical environmental impacts, environmental justice concerns may trigger a cultural or social impact assessment.

III. INTEGRATING DEMOGRAPHIC ANALYSIS AND IMPACT ANALYSIS

- A. Aggregation/disaggregation of demographic data commensurate with the degree/extent of impacts.

AFCEE's methodology bases aggregation of demographic data on the RAIF, which is based on the extent of impacts on a particular resource. Since the ROC, which is used for comparison purposes when determining disproportionality, consists of the smallest geopolitical unit that encompasses the RAIF(s), this may be considered commensurate with the degree/extent of the impacts on the affected area. The methodology also discusses ground truthing. Ground truthing, using the most recent aerial photographs of the area in question, is conducted to determine what land uses occur within the portion of the BNA/census tract within the RAIF. Ground truthing is only used to determine land uses, not to verify income or minority status. If the portion of the RAIF that overlays the BNA/census tract contains primarily residential land use, it is included in the determination of disproportionality. If it is determined through ground truthing that the portion of the RAIF overlaying the BNA/census tract does not contain residential land use, environmental justice impacts are not considered for that particular BNA/census tract.

EPA guidance refers to the use of maps, aerial photographs, and GISs as tools for locating geographical areas where potential environmental justice issues may exist. Several EPA Regions use GIS systems such as ARCINFO and Landview II, which are geographic references or computerized atlases. Landview II includes 1990 demographic and economic data from the Bureau of Census, including populations and housing characteristics and summary information on income, education levels, employment, race, and age. The census databases are spatially linked to the TIGER files that contain geographic and political boundaries. Each county in the census database is divided into several census tracts that are subdivided into census blocks (BNAs). The blocks are

aggregated into block groups containing between 250 and 550 housing units. This level of aggregation allows the identification of small, homogeneous communities, and visualization of the proximity of these communities to sites under consideration for action.

While the EPA guidance discusses locational and distributional tools that can be useful in the determination of geographical areas where environmental justice issues may exist, it does not address the issue of what level of aggregation/disaggregation is deemed appropriate for the analysis. This determination is left to the interpretation and judgment of the analyst.

B. Identification of existence of disproportionality in the area impacted.

AFCEE clearly shows which areas are considered to possess a disproportionality, based on their definition. See Table 2.1-4 on page D- 2-17 in the appendices. Each BNA/census tract's minority and low-income population percentage is compared to the ROC to determine disproportionality. A column with "Y" or "N" signify whether a disproportionality exists or not.

EPA and CEQ guidance do not specify how disproportionality should be presented once the determination has been made that it exists. Once it has been determined that there is a disproportionality, and therefore a environmental justice concern, mitigation measures must be developed to address those environmental effects that are threatened by proposed actions, specifically to address minority and/or low-income populations. Mitigation measures are considered in greater detail further in the analysis.

C. Mitigation measures

Mitigation measures are mentioned briefly in the AFCEE methodology. It states that environmental justice mitigation discussion should summarize the mitigation measures identified in the NEPA analysis or other environmental documentation. It goes on to say that any specific or additional mitigations that would benefit environmental justice populations should be identified, and the parties that would be responsible for implementing the mitigation measures should be identified.

The EPA guidance includes a variety of approaches for addressing potential mitigation measures for addressing disproportionately high and adverse effects to minority and/or low-income populations, should the need for mitigation measures arise. Some specifically aimed at minority and/or low-income populations are: providing assistance to an affected community to ensure that it receives at least its fair share of the anticipated benefits of the proposed action, establishment of a community oversight committee to monitor progress and identify potential community concerns, changing the timing of impact-causing actions to reduce effects on minority or low-income populations, and conducting medical monitoring on affected populations or sub-populations and providing treatment or other responses if necessary.

IV. COMMUNITY INVOLVEMENT

A. Identification of key individuals who can represent various stakeholder interests.

The EPA has identified several opportunities for identifying key individuals who can represent potential minority/low-income populations within an environmental justice analysis. Local community members or interest groups with specific interest in environmental justice issues, and ethnic and cultural-based environmental justice networks

(Indigenous Environmental Network, Southwest Network for Environmental and Economic Justice, Southern Organizing Committee, etc...).

AFCEE's methodology calls for an effort to include public outreach to be directed at low-income/minority groups, as well as the general public, in order to encourage these groups to identify themselves and their concerns. This effort includes coordination with federal, state, local, and tribal governments and agencies; local groups; community leaders; and social agencies in the local community to identify target groups and the channels that would reach these groups. The methodology also suggests contacting organizations such as the local chapters of The National Association for the Advancement of Colored People (NAACP); Salvation Army; churches, food banks, and community centers; local government offices, such as housing authority, economic development and planning departments, and public health and public social services.

B. Inclusion of information-gathering techniques to overcome language/cultural barriers, technical background and literacy.

AFCEE's public outreach efforts do call for the identification of target groups and the channels, to include non-English channels if necessary, to reach these groups. It also calls for coordination with tribal government and agencies. The information-gathering techniques identified include the local phone directory, those agencies identified in the initial scoping process, and the use of other communication channels such as newspaper ads, radio announcements, newsletters, flyers, and posters. Regarding the issue of overcoming technical background and literacy, little to no attention is given here. The methodology does state that all low-income/minority groups identified should be

specifically notified of the availability of any information requesting input into the planning process and any subsequent environmental justice documents available for review.

EPA draft guidance gives extensive guidance regarding the challenges faced in communication issues raised by low-income/minority populations, and possible approaches to overcoming them.

This concludes Part 1 of the AFCEE methodology analysis. Through a descriptive analysis of AFCEE's draft methodology, the second research question, regarding how well AFCEE incorporates environmental justice issues into their NEPA processes as required by EO 12898, has been answered.

The table below summarizes the evaluation categories used to analyze AFCEE's Draft Methodology (Part 1), and shows whether or not their methodology reflects the requirements of EO 12898, based upon the evaluation categories developed in Chapter III.

Constructed Evaluation Categories and Associated Criteria**AFCEE
Methodology**

I. Demographic Analysis	
A. Identification of Exposure Pathways	
1. Needed to determine geographic area for which population demographics are necessary	Y
B. Data Sources	
1. Accurately portrays demographics in area under consideration	Y
C. Population Profile	
1. Identification/definition of minority populations	Y
2. Identification/definition of low-income populations	Y
3. Attempts to identify existence of populations not apparent	Y
4. Examination of other demographic parameters	L
5. Identification of subsistence communities	L
6. Sensitive to cultural factors	L
II. Impact Analysis	
A. Disproportionately High and Adverse Effects	
1. Interpretation of "disproportionate"	Y
2. Consideration of factors concerning distribution of effects	Y
B. Multiple and Cumulative Effects	
1. Consideration of other factors	N
C. Social/Socioeconomic Impacts	
1. Examination of factors including potential conflicts with traditions, customs, religious practices, or Native American sovereignty issues	N
III. Integrating Demographic Analysis and Impact Analysis	
A. Aggregation/disaggregation of demographic data commensurate with degree/extent of impacts	Y
B. Identification of existence of disproportionality in the area impacted	Y
C. Mitigation measures	L
IV. Community Involvement	
A. Identification of key individuals representing stakeholders	Y
B. Inclusion of info-gathering techniques to overcome language/cultural barriers	L

Y = Yes, does reflect requirements of EO 12898

N = No, does not reflect requirements of EO 12898

L = Limited reflection of requirements of EO 12898

Table 4-1 Summary Table of Results - Constructed Evaluation Categories and Associated Criteria Versus AFCEE's Methodology

In order to answer the third research question, the evaluation of the March AFB Disposal FEIS, an application of AFCEE's methodology, follows.

March AFB Disposal FEIS - An Overview

The March AFB Disposal FEIS divides discussion of environmental justice analysis into three sections, based on the acceptable format established for BRAC EISs. The first section is in Chapter 3 of the FEIS and addresses impacts of closure. The second section resides in Chapter 4, where impacts of reuse are discussed. Appendix L of the FEIS briefly discusses the environmental justice methodology. All of these sections are can be referenced in Appendix E in this thesis.

Within the first section of the FEIS, the demographic analysis determines that most environmental impacts from disposal and reuse would occur within Riverside County, therefore this is designated as the ROC. The percentage of minority and low-income population is then determined from Census information for all 124 census tracts within Riverside County, to be compared to the ROC percentage for a determination of disproportionality. (See Appendix E-3-4 through E-3-7 for tables and E-3-2 for graphic representation.) It is determined that 85 of these census tracts have disproportionately high low-income and/or minority populations, and may be subject to environmental justice analysis depending on whether adverse effects are expected to impact those census tracts.

In the section of the FEIS, reuse activities are identified as causing potential noise impacts associated with off-base surface transportation and aircraft CNEL of levels 60 dB

and above. These impacts could affect some of the 85 census tracts previously identified, and therefore they are considered in determining the RAIFs. Aircraft noise and surface traffic noise are the only resources designated as potentially adverse environmental impacts, so these are the only two considered for environmental justice analysis. RAIFs are created for the proposed actions for both aircraft noise and surface traffic noise, and overlaid onto the census tracts within the ROC. Both surface traffic noise and aircraft-related noise were identified as affecting census tracts with disproportionately high minority and low-income populations. See E-4-3 and E-4-5 for RAIF overlays for proposed action.

Evaluation of an Application of AFCEE's Methodology - Part 2

This part of the analysis uses the same evaluation categories/criteria that were used in Part 1 to evaluate an application of AFCEE's methodology, the March AFB Disposal FEIS, in order answer the third and last research question. This analysis of AFCEE's application of environmental justice methodology is in narrative format, subdivided by the categories and associated criteria.

While the AFCEE's application is analyzed independent of the Draft Methodology document, discussion of applicable EPA or CEQ guidance will only be included where it has not been mentioned in the previous analysis. This analysis will serve to answer the final research question.

I. DEMOGRAPHIC ANALYSIS

A. Identification of Exposure Pathways

1. Knowledge of potential pathways (air, water, land) and receptors needed to determine the geographic area for which population demographics are needed.

The same firm that developed AFCEE's Draft Methodology also performed the March AFB Disposal FEIS. Based on previous work performed for AFCEE on other BRAC EISs, they possess the capabilities to accurately identify exposure pathways created by environmental impacts.

B. Data Sources

1. Data selected accurately portrays the current demographics in area under consideration.

Tables from the 1990 Census of Population and Housing were used to extract information on low-income and minority populations within the census tracts contained in Riverside County. The census reports both minority and poverty status as defined previously. Although field verification is mentioned with respect to verifying whether any "pockets" of minority or low-income populations exist outside the initially identified tracts, there is no evidence that this was accomplished. The 1990 Census information is considered to be current for purposes of this analysis.

C. Population Profile

1. Identification of minorities and minority populations consistent with IWG guidance.

As described in the Part 1 of the analysis, the guidance developed by the IWG makes allowances for two different ways to identify/define *minority populations* :

- a. the minority population of the affected area exceeds 50 percent, or
- b. the minority population percentage of the affected area is meaningfully greater than the minority percentage in the general population or other appropriate unit of geographic analysis.

The guidance also specifies that a minority population exists if there is more than one minority group present and the minority percentage, as calculated by aggregating all minority persons, meets one of the above thresholds.

The FEIS complies to some degree with the second option of minority population identification specified by the IWG guidance. However, the words, "meaningfully greater than the minority population percentage in the general population..." allow for a great deal of latitude in interpretation. The preparers of this FEIS have interpreted this to mean that should the percentage of the minority population being affected in the individual census tracts (those overlaid by the RAIF) within Riverside County be greater than the corresponding minority population within the ROC, these minority populations should be identified as being disproportionately affected. The definition used for designating minority populations is consistent with IWG guidance.

2. Identification of low-income populations consistent with IWG guidance.

Identification of low-income populations are accomplished in the same way as for minority populations. The definition used in the FEIS is consistent with IWG guidance.

3. Attempts made to identify the existence of any localized high concentrations of minority communities or low-income communities that may or may not be apparent by examination of the data. (Field verification, enhanced community involvement)

Attempts to identify the existence of any localized high concentrations of minority or low-income communities not apparent were not documented within the FEIS. One reference to field verification is made in the discussion of surface traffic noise impacts. The document states, "impacts to road segments that are not located within disproportionately high census tracts have been eliminated from analysis, subject to field verification." First, field verification is presumably supposed to have been completed prior to completion of this analysis, in order to verify existence of and "pockets". Second, the subject of field verification only comes up when discussing the surface traffic noise impacts, and is not discussed in the aircraft noise impacts.

4. Examination of parameters such as age, sex and population density.

No data on these parameters are provided within the FEIS. This is presumably due to the fact that the only adverse impacts under consideration (surface traffic noise and aircraft noise) may not have a largely varying effect on different subpopulations.

5. Identification of communities reliant on subsistence living.

No information regarding these types of communities is given.

6. Analysis is sensitive to cultural factors where Native American communities may have cultural and/or sacred sites that may be affected.

FEIS does not address this in the environmental justice portion of the analysis.

II. IMPACT ANALYSIS

A. Disproportionately High and Adverse Effects

1. Interpretation of "disproportionate" consistent with draft EPA guidance.
2. Concerning the distribution of effects, consideration of these factors:
 - a. Whether impact has significant or adverse effects or is above generally

accepted norms;

- b. Whether those effects appreciably exceed or are likely to appreciably exceed those of the general population or other appropriate comparison group;
- c. Whether the community is already affected by cumulative or multiple adverse exposures from other environmental hazards.

Factor (b) addresses the potential existence of a disparity between the human health or environmental effects felt by minority/low-income populations when compared to the same effects felt by an appropriate comparison group. AFCEE's FEIS considers this factor in determining disproportionality. When identifying disproportionately high low-income and minority areas, the percentage of each of these groups within each census tract within Riverside County (ROC) is compared to the percentage of these groups contained in the ROC as a whole. If the percentage of minority or low-income persons for a the census tracts are greater than the corresponding ROC percentage is identified as being disproportionately high for that factor. See Table E-3-4 through E-3-7 for a summary table of census tracts in Riverside County. While the FEIS does not explicitly state at what level of difference (1%, 1/10%, 1/100%) between the ROC and the census tracts constitutes a disproportionality, it can be inferred from this table that even 1/100% difference (since this is the degree of measurement used) could constitute a disproportionality. However, the omission of an exact definition may be a deliberate omission. By not clearly defining what makes a comparison disproportionate, the methodology presents all the information to the decision makers, thereby allowing them to draw their own conclusions.

B. Multiple and Cumulative Effects

1. Consideration of factors such as proximity to other emission sources, other environmental contamination, and increased susceptibility to health effects due to

existing pollution.

The FEIS does not address multiple and cumulative effects in this portion of the analysis.

C. Social/Socioeconomic Impacts

1. Examination of factors such as possible conflicts with traditions, customs, religious practices, or Native American sovereignty issues.

The FEIS does not address any social/socioeconomic impacts in this analysis. A separate socioeconomic impact analysis study was performed for the disposal of March AFB, but it is not performed in the context of an environmental justice analysis.

III. INTEGRATING DEMOGRAPHIC ANALYSIS AND IMPACT ANALYSIS

A. Aggregation/disaggregation of demographic data commensurate with the degree/extent of impacts.

Based on the nature of the impacts, the surface traffic and aircraft noise levels, the aggregation of data on the census tract level seems appropriate. However, this determination is left to the interpretation and judgment of the reader of the FEIS.

B. Identification of existence of disproportionality in the area impacted.

The FEIS clearly shows which areas are considered to possess a disproportionality, based on their definition. Again, see E-3-2 for a picture of Riverside County broken out by those census tracts considered to have disproportionately high low-income and/or minority populations. The tables in E-3-4 through E-3-7 detail the actual percentage of minority and low-income populations within each census tract contained in Riverside County. A column with "Y" or "N" signify whether a disproportionality exists or not.

C. Mitigation measures

Four potential mitigation measures for potential environmental justice impacts associated with the noise impacts identified previously are listed: incorporate noise insulation features, such as barriers and buffer zones into development plans; conduct a noise barrier analysis along affected roadways and install barrier walls as needed; use insulating materials in new buildings to reduced interior noise levels; and/or restrict new residential development to areas outside the CNEL 60 dB contour. These mitigation measures could be implemented by the new property owners and/or local planning jurisdictions.

IV. COMMUNITY INVOLVEMENT

A. Identification of key individuals who can represent various stakeholder interests.

The FEIS does not identify these individuals.

B. Inclusion of information-gathering techniques to overcome language/cultural barriers, technical background and literacy.

The FEIS does not include information regarding these techniques within the body of the document.

This concludes Part 2 of the AFCEE methodology analysis. Through a descriptive type analysis of AFCEE's application of its draft methodology, the third and last research question, regarding how well an application of AFCEE's environmental justice methodology incorporates environmental justice issues into their NEPA processes as required by EO 12898, has been answered. Table 4-3 summarizes the results.

The table below summarizes the evaluation categories used to analyze AFCEE's Draft Methodology (Part 1), and shows whether or not their methodology reflects the requirements of EO 12898, based upon the evaluation categories developed in Chapter III.

Constructed Evaluation Categories and Associated Criteria**March AFB
FEIS - EJ**

I. Demographic Analysis	
A. Identification of Exposure Pathways	
1. Needed to determine geographic area for which population demographics are necessary	Y
B. Data Sources	
1. Accurately portrays demographics in area under consideration	Y
C. Population Profile	
1. Identification/definition of minority populations	Y
2. Identification/definition of low-income populations	Y
3. Attempts to identify existence of populations not apparent	N
4. Examination of other demographic parameters	N
5. Identification of subsistence communities	N
6. Sensitive to cultural factors	N
II. Impact Analysis	
A. Disproportionately High and Adverse Effects	
1. Interpretation of "disproportionate"	Y
2. Consideration of factors concerning distribution of effects	N
B. Multiple and Cumulative Effects	
1. Consideration of other factors	N
C. Social/Socioeconomic Impacts	
1. Examination of factors including potential conflicts with traditions, customs, religious practices, or Native American sovereignty issues	N
III. Integrating Demographic Analysis and Impact Analysis	
A. Aggregation/disaggregation of demographic data commensurate with degree/extent of impacts	Y
B. Identification of existence of disproportionality in the area impacted	Y
C. Mitigation measures	Y
IV. Community Involvement	
A. Identification of key individuals representing stakeholders	N
B. Inclusion of info-gathering techniques to overcome language/cultural barriers	N

Y = Yes, does reflect requirements of EO 12898

N = No, does not reflect requirements of EO 12898

L = Limited reflection of requirements of EO 12898

Table 4-3 Summary Table of Results - Constructed Evaluation Categories and Associated Criteria versus March AFB FEIS - EJ Analysis

Summary

Using evaluation categories and associated criteria developed in Chapter III, AFCEE's environmental justice methodology was examined, and an application of that methodology was examined. The results of these evaluations answered the second and third research questions. Further discussion is contained in the last chapter, Conclusions.

V. Conclusions

Chapter Overview

This chapter summarizes the purpose of this study, the methodology, and results. It present conclusions regarding the meaning of environmental justice, and the analysis of AFCEE's environmental justice methodology from two perspectives: an evaluation of AFCEE's Draft Methodology: Environmental Justice Analysis (Part 1), based on a set of developed evaluation categories/criteria; and an evaluation of the application of the methodology in the March AB Disposal FEIS (Part 2), based on the same set of evaluation categories/criteria. A discussion of results follow. Limitations to this research are listed. Areas for further study are recommended.

Research Design

The purpose of this study was to analyze a methodology developed by the Air Force Center for Environmental Excellence that strives to incorporate environmental justice issues into the NEPA process, with focus on EIS documentation. It also explored the meaning of environmental justice along with related terminology, and chronicled important historical events leading up to and through the perpetuation of the environmental justice movement, which culminated in the publication of EO 12898. Specifically, the research was designed to answer three primary investigative questions listed previously, and repeated below:

1. What is environmental justice?
2. How well does AFCEE's methodology incorporate environmental justice issues into their NEPA processes as required by EO 12898?
3. How well does an application of AFCEE's environmental justice methodology incorporate environmental justice issues into their NEPA processes as required by EO 12898?

The research questions guided the literature review, methodology, and analysis presented in previous chapters. Conclusions are organized below to answer each research question in order.

Conclusions

1. What is environmental justice?

The term, environmental justice, is a concept that is difficult to define. It does not have a simple definition, with a meaning common to everyone. In an attempt to comprehend the meaning of environmental justice, it has been explored in the context in which it has developed throughout the Literature Review. While the meaning of environmental justice will be confined to the USEPA definition mentioned previously for purposes of answering the second and third research questions, the meaning of this term is explored in the broader sense in the following discussion.

Referring back to Figure 2-1, Meaning of Environmental Justice Pyramid, the various components are arranged in the shape of a pyramid to demonstrate the relationships between them. At the base of the pyramid are the historical events constituting the environmental justice movement, which is where the roots of the environmental justice concept and related terminology originated. Social rights activists exposed a pattern of unequal distribution of negative environmental consequences amongst people based on

race, ethnicity, and social class. Studies were conducted verifying that the majority of the environmental burden, such as the siting of noxious facilities, landfills, and incinerators, was being placed in minority and/or low-income communities. Equal distribution, without bias or prejudice, of these environmental burdens was demanded - the foundations of environmental justice were established.

Building on this movement, two works are presented in the Literature Review to reflect both far reaching, or abstract, meaning of environmental justice, as well as a more tangible meaning of environmental justice. These are represented in the pyramid as the next level as Principles of Environmental Justice and Dr. Bullard's framework for environmental justice, respectively.

On the more abstract, or all-encompassing end of the spectrum are the Principles of Environmental Justice, as they are stated from the Proceedings to the First National People of Color Environmental Leadership Summit. Most of the language used is esoteric, based on concepts such as universal rights and justice. It speaks to re-establishing "our spiritual interdependence to the sacredness of our Mother Earth..." and the right to be free from ecological disasters. It demands "public policy be based on mutual respect and justice for all peoples, free from any form of discrimination or bias." It calls for a universal protection to a clean environment and affirms the "fundamental right toenvironmental self-determination of all peoples." It acts as a sort of blueprint for a utopian society based on these principles of environmental justice.

Dr. Bullard, one of the leading figures in the realm of environmental justice, created a framework for the government to appropriately address environmental justice issues

(Bullard, 1995:73-75). This framework serves to place environmental justice in a more tangible light, by addressing what should be done in order to make environmental justice a reality within the context of our government. While this framework does not specify environmental justice implementation procedures, it does focus on a course of action. It calls for legislation that would outlaw environmental practices that disproportionately harm minorities, require the burden of proof of discrimination to be shifted away from minority communities and toward the polluting industries, and the elimination of the standard of "intent" requiring the complainant to prove discrimination was done intentionally. He also addresses pollution prevention and compliance concepts within his environmental justice framework by stating, "environmental threats should be eliminated so that harms can be prevented before they occur", and "governments should redress inequities by targeting resources to communities with the worst problems"(Bullard 1995:79-81).

The third level of the pyramid, moving up from the base, is EO 12898, which is the federal government's attempt at employing the concept of environmental justice in a practical application, by requiring it in the policies and practices of all Federal agencies. The Memorandum explicitly states the intentions of the EO: to focus Federal attention on the environmental and human health condition in minority and low-income communities, promote nondiscrimination in Federal programs, and to provide minority and low-income communities the opportunity to access public information and participate in issues relating to human health and the environment. While the Principles of Environmental Justice and Bullard's framework call more attention to the plight of people of color, the EO explicitly

addresses both minority and low-income populations in the quest for environmental justice.

All of these components, the historical events constituting the environmental justice movement, Principles of Environmental Justice, Bullard's framework, and EO 12898, act in concert to form the meaning of environmental justice, which sits at the pinnacle of the pyramid. This discussion has served to answer the first research question: what is environmental justice?

2. How well does AFCEE's methodology incorporate environmental justice issues into their NEPA processes as required by EO 12898?

This descriptive assessment of AFCEE's environmental justice methodology was made based on the formulation of evaluation categories intended to reflect the directives set forth in EO 12898. The framework used in this analysis was formed by adapting criteria established by Wilkinson, and draft guidance set forth by the EPA and CEQ regarding inclusion of environmental justice in NEPA analysis. The subject of analysis in Part 1 was the AFCEE document Draft Methodology: Environmental Justice Analysis. There were four evaluation categories: demographic analysis, impact assessment, integrating demographic analysis and impact assessment, and community involvement. Refer to Table 4-1 for the results.

3. How well does an application of AFCEE's environmental justice methodology incorporate environmental justice issues into their NEPA processes as required by EO 12898?

Part 2 of the AFCEE methodology analysis was based on an evaluation of an actual application of AFCEE's environmental justice methodology by examining the Environmental Justice Sections of the March AFB Disposal FEIS. The same set of evaluation categories/criteria that were used in Part 1 of the analysis were used to evaluate the FEIS to determine how well the application incorporated environmental issues. Refer to Table 4-2 for results.

Discussion of Results

Environmental justice may mean many different things to many different people -- dependent on a wide variety of factors, ranging from the color of one's skin, ethnic and cultural beliefs, to one's financial standing, political affiliation, and generally, the way one views the world. Despite these varied perspectives, the underlying theme of environmental justice is the fair and just (and non-discriminatory) treatment and consideration of every human being on this planet with respect to decisions that affect our environment. This means that every human being must have equal standing when the time comes to make those decisions affecting our environment. For many, exercising that "equal standing" is difficult to impossible due to limitations, both real and perceived, that prevent them in participating in the decision making process. Environmental justice seeks

to overcome these limitations, and reach out to the public most affected by these limitations.

In theory, the draft methodology does a better job than the application at meeting the evaluation criteria. As the first summary table shows, using the evaluation categories developed in Chapter III. as the tool to analyze AFCEE's Draft Methodology, the methodology does reflect the requirements of EO 12898 in most of the categories. The only areas where it does not accurately reflect the requirements of EO 12898 are for the criteria covering multiple and cumulative effects, and social/socioeconomic effects.

AFCEE's application of their environmental justice methodology, the March AFB Disposal FEIS, meets eight of the criteria, but does not meet the remaining nine of the criteria. Areas where it did not meet the specified criteria were within the Population Profile in the Demographic Analysis; the multiple and cumulative effects, and the social/socioeconomic effects in the Impact Analysis; and Community Involvement.

When comparing how the methodology measured up to the evaluation criteria and how the application measured up to the evaluation criteria, the methodology is closer to meeting the criteria in all but one area. A potential cause for disparity may be that it is easier to give implementation procedures rather than to execute them. Another potential cause is due to the limited nature of the Disposal FEIS, some elements such as Community Involvement could not be fully explored since the environmental justice portion of this FEIS was inserted after the fact. The one area where the application fared better than the methodology is the Mitigation Measures within the Integrating Demographic Analysis and Impact Analysis category. Since specific adverse impacts are detailed in the application,

it may have been easier to pinpoint, and therefore to include, specific mitigation measures for those impacts.

Limitations

There are several and varied limitations associated with the tool chosen to be used in the analysis, the actual documents used in the analysis, and the conclusions that can be drawn from the results of the analysis. Assumptions were also made regarding the intent of EO 12898.

The primary tool used to analyze AFCEE's methodology, both from the perspective of the actual methodology they had developed, and an actual application of that methodology, was chosen based on what it could reveal about the implementation of EO 12898 in subject documents. The evaluation categories/criteria were based on draft guidance published by the EPA and CEQ fashioned around a framework outlined in a paper by Cory Wilkinson. This set of developed evaluation criteria could only reveal information pertaining to the subject documents within set boundaries.

There were limitations regarding the actual documentation used as the subject of the evaluation. While the AFCEE methodology was built with all applications in mind, AFCEE's application here is used in BRAC, which is not best scenario to explore the full scope of environmental justice issues. Also, both subject documents, AFCEE's Draft Methodology and the March AFB Disposal FEIS were published prior to receiving and definitive guidance from regarding interpretation of EO 12898 within the NEPA analysis process.

Both the analysis and conclusions reached were limited to the researcher's interpretations of subject documents, and how those documents were measured against the evaluation categories and general document review.

It was assumed that the draft guidance published by the EPA and CEQ accurately reflected the requirements of EO 12898 pertaining to the NEPA process.

Areas For Future Research

Areas for future research could include the following:

- A case study of the application of environmental justice methodology (Air Force or other) on an action requiring an EIS or EA other than a BRAC action
- Usability study on an application of environmental justice methodology from both user's perspective and public's perspective
- Development of a new tool used to analyze effectiveness of environmental justice in the NEPA process
- Redevelop environmental justice methodology guidance in light of most recent guidance

Summary

This research explored the meaning of environmental justice. It examined how AFCEE incorporated it into the NEPA process by analyzing both their actual methodology and an application of that methodology in an EIS document. Overall, AFCEE produced a viable methodology that the Air Force and other Federal agencies can use to ensure environmental justice is incorporated into the NEPA process. This

methodology is a living document and is susceptible to change as implementation of environmental justice becomes better understood, and as further guidance is published by the EPA, CEQ, and Air Staff.

Appendix A: Document Review Analysis of March AFB Disposal FEIS

Document Review Analysis - Methodology

In order to provide another dimension to the assessment of AFCEE's environmental justice methodology, a general document review is used. This addition to AFCEE's methodology analysis does not directly support the focus of the research questions, and therefore are placed here in the appendices. It evaluates the application of AFCEE's methodology: the March AFB Disposal FEIS. This document was one of the few available FEIS's that include incorporation of an environmental justice analysis.

Jain specifies three specific areas of concern for EIS review: administrative compliance, general document overview, and technical content (Jain, 1993:158). Since environmental justice analysis is only a portion of the whole EIS, and this research focuses on the substantive rather than procedural issues, only the general document review will be utilized. Since this general document review is aimed at assessing EIS documentation, and environmental justice analysis is a part of an EIS, this tool was chosen to assess the application of AFCEE's environmental justice methodology within the context of the March AFB Disposal FEIS. Specific concerns include the use of current information, the use of acceptable analysis techniques and adequate references, and presentation without bias (Jain, 1993:159). The following, as specified by Jain (Jain, 1993:168), will be used to assess an application of AFCEE's environmental justice methodology: the March AFB Disposal FEIS.

GENERAL DOCUMENT REVIEW CRITERIA

Area of Concern	Criteria
A. Readability	<ol style="list-style-type: none">1. Write clearly.2. Remove all ambiguities.3. Avoid use of technical jargon; all technical terms should be clearly explained.
B. Flavor and focus	<ol style="list-style-type: none">1. Do not slant or misinterpret findings.2. Avoid use of value-imparting adjectives or phrases.3. Avoid confusion or mix-up among economic, environmental, and ecological impacts and productivity.4. Avoid unsubstantiated generalities.5. Avoid conflicting statements.
C. Presentation	<ol style="list-style-type: none">1. Use consistent format.2. Use tables, maps, and diagrams to best advantage.3. Avoid mistakes in spelling, grammar, and punctuation.
D. Quantification	<ol style="list-style-type: none">1. Use well-defined, acceptable qualitative terms.2. Quantify factors, effects, uses, and activities that are readily amenable to quantification.
E. Data	<ol style="list-style-type: none">1. Identify all sources.2. Use up-to-date data.3. Use field data collection programs as necessary.4. Use technically approved data collection procedures.5. Give reasons for use of unofficial data.
F. Methods and procedures	<ol style="list-style-type: none">1. Use quantitative estimation procedures, techniques, and models for arrival at the best estimates.2. Identify and describe all procedures and models used.

G. Interpretation of findings

3. Identify sources of all judgments.
4. Use procedures and models acceptable by professional standards.
 1. Consider and discuss all impact areas before any are dismissed as not applicable.
 2. Give thorough treatment to all controversial issues, and discuss the implications of all results.
 3. Consider the implications for each area of a range of outcomes having significant uncertainty.
 4. Analyze each alternative in detail and give reasons for not selecting it.
 5. Scrutinize and justify all interpretations, procedures, and findings that must stand up under expert professional scrutiny.

Document Review Analysis

The document review analysis, Part 2 of the AFCEE methodology analysis, evaluates an application of AFCEE's methodology, the March AFB Disposal FEIS, in order to answer the third research question. The analysis of this application of AFCEE's environmental justice methodology is in narrative format, subdivided by areas of concern and associated criteria.

The March AFB Disposal FEIS divides discussion of environmental justice analysis into three sections, based on the acceptable format established for BRAC EISs. The first section in Chapter 3 of the FEIS addresses impacts of closure, the second section resides in Chapter 4, where impacts of reuse are discussed, and Appendix L, where the environmental justice methodology is briefly described.

This part of the analysis begins with a description of the each area of concern and associated criteria. The March AFB Disposal FEIS is then reviewed within each category, or area of concern, using the criteria as a sort of checklist.

GENERAL DOCUMENT REVIEW CRITERIA

Area of Concern	Criteria
A. Readability	<ol style="list-style-type: none">1. Write clearly.2. Remove all ambiguities.3. Avoid use of technical jargon; all technical terms should be clearly explained.

The document meets the readability criteria in two of the three areas. The environmental justice sections, Section 3.5, 4.5 and Appendix L are clearly written and unambiguous. Section 3.5, Environmental Justice, covers a brief background on environmental justice and the demographic analysis narrative, which identifies those census tracts within the ROC that are considered to have disproportionately high low-income or minority populations. Section 4.5, also entitled Environmental Justice, begins by referring back to Section 3.5 and associated data. It also refers the reader to Appendix L for a description of the methods used in the environmental justice analysis. After establishing that 85 out of 124 census tracts within Riverside County (the ROC) are considered to have disproportionately high low-income or minority populations, a discussion follows detailing which reuse activities associated with the Proposed Action and alternatives are considered, which are not, and why. Focusing on the reuse activities that cause potential noise impacts, (the only impacts considered to be adverse as a result of reuse), the impacts to the affected census tracts (identified as having a disproportionate

low-income or minority population) for aircraft noise and surface traffic noise are discussed for the Proposed Action and each of three alternatives. Section 4.5 ends with a listing of mitigation measures that could be implemented by the new property owners and/or local planning jurisdictions. Appendix L, Environmental Justice Analysis Methods, discusses the methods used in analysis in a clear and understandable manner.

While the documentation avoids use of technical jargon, not all technical terms are clearly explained. In Appendix L, Environmental Justice Analysis Methods, several key terms are identified and defined: environmental justice analysis, low-income populations, minority populations, Region of Comparison (ROC), and Resource Adverse Impact Footprint (RAIF). Four out of five of these definitions can also be found in Appendix A, Glossary of Terms and Acronyms/Abbreviations. RAIF is not included in Appendix A. Another minor disconnect is between the use of the term, ROI, in Section 3.5, and the absence of this term in Appendix L, the section containing all the other definitions. However, the definition of ROI can be found Appendix A. (ROI and RAIF are more than likely two different terms meaning the same thing.) Other than this minor exception, other technical terms or terms unique to this part of the analysis are clearly explained.

B. Flavor and focus

1. Do not slant or misinterpret findings.
2. Avoid use of value-imparting adjectives or phrases.
3. Avoid confusion or mix-up among economic, environmental, and ecological impacts and productivity.
4. Avoid unsubstantiated generalities.
5. Avoid conflicting statements.

The document meets the flavor and focus criteria. The findings of the demographic analysis, and examination of each of the reuse activities are objective and without bias. The "findings" of this document are not conclusory in nature, but merely a presentation of information, based on their established methodology. The document does not have value-imparting adjectives or phrases, unsubstantiated generalities, or conflicting statements. The generalities that are made are those assumed based on the methodology. The criteria concerning the existence of confusion between economic, environmental, and ecological impacts and productivity does not apply.

C. Presentation

1. Use consistent format.
2. Use tables, maps, and diagrams to best advantage.
3. Avoid mistakes in spelling, grammar, and punctuation.

The document meets the presentation criteria. The format is consistent within the body of the EIS, and tables and figures provide the requisite information. No mistakes in spelling, grammar, or punctuation are found.

D. Quantification

1. Use well-defined, acceptable qualitative terms.
2. Quantify factors, effects, uses, and activities that are readily amenable to quantification.

The document meets the quantification criteria. As defined in Appendix L, Environmental Justice Analysis Methods, and Appendix A, Glossary of Terms and Acronyms/Abbreviations, the terms are defined and acceptable within the construct that

has been created in the methodology. Those factors, effects, uses and activities that are amenable to quantification are quantified. For the demographic analysis, this includes a quantification, based on data provided by the US Department of Commerce, Bureau of the Census, of the minority percentages and low-income percentages within each census tract in Riverside County. Percentages of minority and low income are also included for the county as a whole, the state of California, and the United States.

Some confusion exists between how the population numbers are reported for the aircraft noise. For the aircraft noise, each of the alternatives and the Proposed Action state how many additional residents will be affected by the year 2016 within the census tracts identified as having disproportionately high low-income or minority populations. For example, under the SKR/Cargo Alternative, three census tracts (identified as having disproportionately high low-income or minority populations) are affected by the noise contours. "Within these three census tracts, it is estimated that by 2016 an additional 1,104 residents would be exposed...." It is unclear if this estimation of 1,104 residents represents an additional 1,104 minority or low-income residents, or if this addition to the population consists of a mixed population. Each alternative and the Proposed Action also states what this number represents when compared to the No-Action Alternative projections. Again, in the case of the SKR/Cargo Alternative, "This number represents an increase of 7 percent over No-Action Alternative projections." It is unclear what this percentage represents. Does this number represent an increase of 7 percent in terms of the total population affected, or does it represent an increase of 7 percent in terms of the minority or low-income population affected? An inconsistency exists regarding how these

population numbers and associated percentages are reported. The format just discussed, which includes an additional number of residents projected to be affected by a given alternative and associated percentage over the No-Action Alternative, is not used for the surface traffic noise impacts.

E. Data

1. Identify all sources.
2. Use up-to-date data.
3. Use field data collection programs as necessary.
4. Use technically approved data collection procedures.
5. Give reasons for use of unofficial data.

This document meets the data criteria to the extent defined in the methodology outlined in Appendix L. The document uses the most up-to-date census information available. One discrepancy exists regarding field verification. In the discussion of surface traffic noise impacts, the document states, "Impacts to road segments that are not located within disproportionately high census tracts have been eliminated from analysis, subject to field verification." First, field verification is presumably supposed to have been completed prior to completion of this analysis, in order to verify whether any "pockets" of minority or low-income populations exists outside the initially identified tracts. Second, the subject of field verification only comes up when discussing the surface traffic noise impacts, and is not discussed in the aircraft noise impacts. Third, no definition of what a "field verification" entails is given in the document. No unofficial data are used, and therefore this criteria is not applicable.

F. Methods and procedures

1. Use quantitative estimation procedures, techniques, and models for arrival at the best estimates.
2. Identify and describe all procedures and models used.
3. Identify sources of all judgments.
4. Use procedures and models acceptable by professional standards.

This group of criteria is largely not applicable to this document. Estimates, other than projections of demographic information, are not made. Those procedures used are identified in Appendix L, Environmental Justice Analysis Methods. There are no judgments made outside the boundaries created by the methodology. At the time of this document's publication, no "acceptable" models or professional standards existed.

G. Interpretation of findings

1. Consider and discuss all impact areas before any are dismissed as not applicable.
2. Give thorough treatment to all controversial issues, and discuss the implications of all results.
3. Consider the implications for each area of a range of outcomes having significant uncertainty.
4. Analyze each alternative in detail and give reasons for not selecting it.
5. Scrutinize and justify all interpretations, procedures, and findings that must stand up under expert professional scrutiny.

Potential impacts were discussed, and rationale was provided regarding the inclusion or exclusion of resources (such as geology and soils, water, cultural) in the environmental justice analysis. Within the section covering impacts of reuse (Section 4.5), resources that

were not adversely impacted as a result of reuse activities associated with the Proposed Action and alternatives were listed. Environmental justice analysis was not conducted for these resources. However, potential noise impacts associated with off-base surface transportation and aircraft CNEL of levels 60 dB and above were the impacts considered to affect the 85 census tracts identified as having disproportionately high low-income and minority populations. These were identified as requiring further discussion in the context of environmental justice analysis.

Environmental justice by its very nature is considered to be "controversial". Implications of results presented (see tables ?? and figures ??) are not explored. The results depict whether a disproportionality exists or not, and by what percentage, but do not venture into interpretation of implications.

The purpose of an EIS is to provide the decision maker with all the information regarding potential impacts of the Proposed Action and alternatives, and allow the decision maker to consider and make the selection of which course of action to take. Therefore, reasons are not provided in this document regarding which alternative is selected and why.

Appendix L of the FEIS gives a brief explanation of interpretations and procedures used to perform the environmental justice analysis.

This concludes Part 2, the analysis of AFCEE's application of their environmental justice methodology. See the next page for a summary of this portion of the analysis.

GENERAL DOCUMENT REVIEW CRITERIA

Area of Concern	Criteria	Meets Criteria?
A. Readability	1. Write clearly.	Y
	2. Remove all ambiguities.	Y
	3. Avoid use of technical jargon; all technical terms should be clearly explained.	N
B. Flavor and focus	1. Do not slant or misinterpret findings.	Y
	2. Avoid use of value-imparting adjectives or phrases.	Y
	3. Avoid confusion or mix-up among economic, environmental, and ecological impacts and productivity.	Y
	4. Avoid unsubstantiated generalities.	Y
	5. Avoid conflicting statements.	Y
C. Presentation	1. Use consistent format.	Y
	2. Use tables, maps, and diagrams to best advantage.	Y
	3. Avoid mistakes in spelling, grammar, and punctuation.	Y
D. Quantification	1. Use well-defined, acceptable qualitative terms.	Y
	2. Quantify factors, effects, uses, and activities that are readily amenable to quantification.	Y
E. Data	1. Identify all sources.	Y
	2. Use up-to-date data.	Y
	3. Use field data collection programs as necessary.	N
	4. Use technically approved data collection procedures.	Y
	5. Give reasons for use of unofficial data.	N/A
F. Methods and procedures	1. Use quantitative estimation procedures, techniques, and models for arrival at the best estimates.	N/A
	2. Identify and describe all procedures and	Y

G. Interpretation of findings

models used.

3. Identify sources of all judgments.

N/A

4. Use procedures and models acceptable by professional standards.

N/A

1. Consider and discuss all impact areas before any are dismissed as not applicable.

Y

2. Give thorough treatment to all controversial issues, and discuss the implications of all results.

N/A

3. Consider the implications for each area of a range of outcomes having significant uncertainty.

N/A

4. Analyze each alternative in detail and give reasons for not selecting it.

N/A

5. Scrutinize and justify all interpretations, procedures, and findings that must stand up under expert professional scrutiny.

Y

Y = Yes, meets criteria

N = No, does not meet criteria

N/A = Not Applicable

Appendix B: Other Federal Agency Efforts

Other Federal agencies also struggled with the interpretation of the EO prior to the publication of EPA and CEQ draft guidance. Many strategies/methodologies were developed simultaneously with AFCEE's, with some similarities as well as differences in approach to the incorporation of environmental justice into the NEPA process. The following discussion takes a look at the environmental justice efforts made by three other Federal agencies, based on a collection of correspondence, draft EISs, and articles discussing methodology. These three Federal agencies were chosen based on the availability of data, and the similarities concerning the types of actions requiring implementation of the NEPA process. The scope of the discussion is limited to a brief description of each approach, concentrating on the most salient aspects of their environmental justice analysis. Discussions of each vary in length, dependent on the availability of data for each Federal agency's approach. It is understood that differences between each approach are due, in part, to the unique nature of the agency's mission. However, little cross-flow or collaboration between Federal agencies occurred during the timeframe used to develop methodologies, so part of the differences in approaches is also due to individual agency interpretations. Since some of the documentation used to describe each approach is in draft form and is annotated with "Do Not Cite", sources will not be referenced where necessary.

Federal agency #1. The first Federal agency under consideration is the Army. While some literature concerning the implementation of environmental justice concerns into the

NEPA process are cited, some has been annotated "Internal Review Only". The pertinent portions of material with restricted release have been slightly altered in order to preserve anonymity while gleaning useful information regarding their interpretation of how environmental justice is incorporated into the NEPA process.

The Army BRAC NEPA Manual, June 1995 does not give a detailed methodology on how to include environmental justice issues into the NEPA process. It recognizes that these issues must be considered and addressed in the BRAC NEPA process during the identification and analysis of the potential environmental and socioeconomic impacts of proposed BRAC actions. It also mentions being sensitive to considerations of environmental justice throughout preparation of an EA/EIS, especially during public scoping since this is when minority and low-income populations can be identified, their participation facilitated, and their concerns determined.

To the extent given, the process of including environmental justice in the NEPA process is in the form of suggested statements to include in EISs. For example, it states that "in Section 1.0 of a NEPA document, include a sentence that describes actions taken to address environmental justice issues," and then continues with the example:

"Persons and organizations known or though to have a potential interest, including minority, low-income disadvantaged, and Native American groups, wee identified, informed and given the opportunity to participated in the decision-making process."

The remainder of the guidance outlined in this Army BRAC NEPA Manual covers how environmental justice should be addressed in the Affected Environment section of the NEPA document (also provides a generic statement), the Environmental and

Socioeconomic Consequences section, and Appendices. It states that the Environmental and Socioeconomic Consequences section should analyze and document impacts of the proposed action and alternatives on minority and/or low-income populations in the region of influence. This document does not detail how the analysis will be performed, but a draft EIS provides additional insight into the Army's methods of analysis. The draft EIS has been annotated "Internal Review Only", so it will not be specifically referenced.

The draft EIS provides the following insights into how the Army performs its environmental justice analysis:

The draft EIS for disposal of an Army post aggregates population statistics of 5 census tracts adjoining the post (using Bureau of the Census data) to be used in the comparison in determining disproportionality. Percentages of populations by race (White, Black, Asian, American Indian, Other Race, and Hispanic Origin) are given for the Army post, and the two counties in which it resides. Comparisons are drawn between the percentage of minorities within the area of the Army post and the percentages of minorities within each of the two counties. In this case, all of the percentages of minority populations identified were less than the percentages of minority populations within the vicinity of the Army post, which led to the conclusion that disposal of this Army post did not create disproportionately high or adverse human health or environmental impact on minority populations of the surrounding community. For low-income concerns, the poverty threshold for a family of four in 1989 (\$12,674) is used. Once again, an aggregation of population percentages within the vicinity of the Army post is compared to those percentages of the two counties in order to determine

disproportionality. Both counties possessed a higher low-income population percentage than the Army post vicinity, which led to the conclusion that a disproportionality did not exist where low-income populations were concerned. While this did not change the determination of disproportionality, the draft EIS included combined statistics for populations that were considered to be both minority and low-income.

The draft EIS also included homeless assistance programs and information identifying temporary shelters and housing assistance for homeless individuals and families.

This draft EIS concludes environmental justice section by saying:

"Disposal of the (Army post) does not create disproportionately high or adverse human health or environmental impacts on minority or low-income populations of the surrounding community. The proportion of minority and low-income persons in the population of the census tracts surrounding (Army post) is less than in the county as a whole (summarizes findings). None of the () County neighborhoods identified as minority or low-income are located within walking distance of (Army post) and the nearest neighborhoods so identified are separated from (Army post) by major highways...It does not appear that disposal would affect minority or low-income communities."

None of the information obtained regarding the Army's environmental justice approach included a scenario where a disproportionality did exist, which would have warranted further environmental justice analysis.

Federal Agency #2. The second Federal agency under consideration is the Navy. While a manual detailing a specific methodology was not available, several environmental justice sections of EISs and EA were available for inspection. Spanning in dates from December 1994 through February 1995, this environmental documentation shed some

light on the Navy's approach to environmental justice. Highlights regarding the Navy's implementation of environmental justice into the NEPA process follow.

Census information describing the percentages of minorities and low-income populations was collected and presented in the same manner as the Army's data. Low-income status was also determined in the same way. While the aggregation of data is similar to the Army's, it is unclear whether or not a disproportionality exists between the impacted area and an area of comparison. Not included in any of the other approaches under consideration, the Navy actually performed what it calls a "windshield-type field reconnaissance" on all accessible roads within an impact area to attempt to visually identify concentrations of minority and low-income households.

Federal Agency #3. The discussion of the third and last Federal agency's approach is limited to its' draft guidance incorporating environmental justice into the NEPA process. This guidance is under constant revision, as are all of the draft guidance thus far, and has restricted the use of it by annotating "Do Not Cite or Quote" throughout the document. Therefore, Federal Agency #3 will remain anonymous for the purposes of this discussion describing its' approach to environmental justice.

Similar to both the Army and Navy, Federal Agency #3's approach consists of a presentation of census data for determination of disproportionality. However, the aggregation of population statistics is based on the block group level, which generally consist of between 250 and 550 housing units. The population characteristics are defined within a certain radius of the potentially impacted area. While some data is aggregated at the census tract level (2,500 to 8,000 persons), other data is aggregated at the block group

level, dependent on the size of the radius accompanying the potentially impacted area.

Once the radius is defined, the blocks or tracts are included in the analysis only if 50 percent or more of the block or tract falls within the defined radius. It makes the assumption that minority or low-income populations are distributed uniformly throughout the block or tract.

APPENDIX C

THE WHITE HOUSE
WASHINGTON

February 11, 1994

MEMORANDUM FOR THE HEADS OF ALL DEPARTMENTS AND AGENCIES

SUBJECT: Executive Order on Federal Actions to Address
Environmental Justice in Minority Populations
and Low-Income Populations

Today I have issued an Executive order on Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. That order is designed to focus Federal attention on the environmental and human health conditions in minority communities and low-income communities with the goal of achieving environmental justice. That order is also intended to promote nondiscrimination in Federal programs substantially affecting human health and the environment, and to provide minority communities and low-income communities access to public information on, and an opportunity for public participation in, matters relating to human health or the environment.

The purpose of this separate memorandum is to underscore certain provision of existing law that can help ensure that all communities and persons across this Nation live in a safe and healthful environment. Environmental and civil rights statutes provide many opportunities to address environmental hazards in minority communities and low-income communities. Application of these existing statutory provisions is an important part of this Administration's efforts to prevent those minority communities and low-income communities from being subject to disproportionately high and adverse environmental effects.

I am therefore today directing that all department and agency heads take appropriate and necessary steps to ensure that the following specific directives are implemented immediately:

In accordance with Title VI of the Civil Rights Act of 1964, each Federal agency shall ensure that all programs or activities receiving Federal financial assistance that affect human health or the environment do not directly, or through contractual or other arrangements, use criteria, methods, or practices that discriminate on the basis of race, color, or national origin.

Each Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority communities and low-income communities, when such analysis is required by the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. section 4321 et seq. Mitigation measures outlined or analyzed in an environmental assessment, environmental impact statement, or record of decision, whenever feasible, should address significant and adverse environmental effects of proposed Federal actions on minority communities and low-income communities.

Each Federal agency shall provide opportunities for community input in the NEPA process, including identifying potential effects and mitigation measures in consultation with affected communities and improving the accessibility of meetings, crucial documents, and notices.

The Environmental Protection Agency, when reviewing environmental effects of proposed action of other Federal agencies under section 309 of the Clean Air Act, 42 U.S.C. section 7609, shall ensure that the involved agency has fully analyzed environmental effects on minority communities and low-income communities, including human health, social, and economic effects.

Each Federal agency shall ensure that the public, including minority communities and low-income communities, has adequate access to public information relating to human health or environmental planning, regulations, and enforcement when required under the Freedom of Information Act, 5 U.S.C. section 552, the Sunshine Act, 5 U.S.C. section 552b, and the Emergency Planning and Community Right-to-Know Act, 42 U.S.C. section 11044.

* * *

This memorandum is intended only to improve the internal management of the Executive Branch and is not intended to, nor does it create, any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity by a party against the United States, its agencies, its officers, or any person.

William D. Clinton

Presidential Documents

Title 3—

Executive Order 12898 of February 11, 1994

The President

Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

By the authority vested in me as President by the Constitution and the laws of the United States of America, it is hereby ordered as follows:

Section 1-1. IMPLEMENTATION.

1-101. *Agency Responsibilities.* To the greatest extent practicable and permitted by law, and consistent with the principles set forth in the report on the National Performance Review, each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories and possessions, the District of Columbia, the Commonwealth of Puerto Rico, and the Commonwealth of the Mariana Islands.

1-102. *Creation of an Interagency Working Group on Environmental Justice*
(a) Within 3 months of the date of this order, the Administrator of the Environmental Protection Agency ("Administrator") or the Administrator's designee shall convene an interagency Federal Working Group on Environmental Justice ("Working Group"). The Working Group shall comprise the heads of the following executive agencies and offices, or their designees: (a) Department of Defense; (b) Department of Health and Human Services; (c) Department of Housing and Urban Development; (d) Department of Labor; (e) Department of Agriculture; (f) Department of Transportation; (g) Department of Justice; (h) Department of the Interior; (i) Department of Commerce; (j) Department of Energy; (k) Environmental Protection Agency; (l) Office of Management and Budget; (m) Office of Science and Technology Policy; (n) Office of the Deputy Assistant to the President for Environmental Policy; (o) Office of the Assistant to the President for Domestic Policy; (p) National Economic Council; (q) Council of Economic Advisers; and (r) such other Government officials as the President may designate. The Working Group shall report to the President through the Deputy Assistant to the President for Environmental Policy and the Assistant to the President for Domestic Policy.

(b) The Working Group shall: (1) provide guidance to Federal agencies on criteria for identifying disproportionately high and adverse human health or environmental effects on minority populations and low-income populations;

(2) coordinate with, provide guidance to, and serve as a clearinghouse for, each Federal agency as it develops an environmental justice strategy as required by section 1-103 of this order, in order to ensure that the administration, interpretation and enforcement of programs, activities and policies are undertaken in a consistent manner;

(3) assist in coordinating research by, and stimulating cooperation among, the Environmental Protection Agency, the Department of Health and Human Services, the Department of Housing and Urban Development, and other agencies conducting research or other activities in accordance with section 3-3 of this order;

(4) assist in coordinating data collection, required by this order;

- (5) examine existing data and studies on environmental justice;
- (6) hold public meetings as required in section 5-502(d) of this order; and
- (7) develop interagency model projects on environmental justice that evidence cooperation among Federal agencies.

1-103. Development of Agency Strategies. (a) Except as provided in section 6-605 of this order, each Federal agency shall develop an agency-wide environmental justice strategy, as set forth in subsections (b)-(e) of this section that identifies and addresses disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. The environmental justice strategy shall list programs, policies, planning and public participation processes, enforcement, and/or rulemakings related to human health or the environment that should be revised to, at a minimum: (1) promote enforcement of all health and environmental statutes in areas with minority populations and low-income populations; (2) ensure greater public participation; (3) improve research and data collection relating to the health of and environment of minority populations and low-income populations; and (4) identify differential patterns of consumption of natural resources among minority populations and low-income populations. In addition, the environmental justice strategy shall include, where appropriate, a timetable for undertaking identified revisions and consideration of economic and social implications of the revisions.

(b) Within 4 months of the date of this order, each Federal agency shall identify an internal administrative process for developing its environmental justice strategy, and shall inform the Working Group of the process.

(c) Within 6 months of the date of this order, each Federal agency shall provide the Working Group with an outline of its proposed environmental justice strategy.

(d) Within 10 months of the date of this order, each Federal agency shall provide the Working Group with its proposed environmental justice strategy.

(e) Within 12 months of the date of this order, each Federal agency shall finalize its environmental justice strategy and provide a copy and written description of its strategy to the Working Group. During the 12 month period from the date of this order, each Federal agency, as part of its environmental justice strategy, shall identify several specific projects that can be promptly undertaken to address particular concerns identified during the development of the proposed environmental justice strategy, and a schedule for implementing those projects.

(f) Within 24 months of the date of this order, each Federal agency shall report to the Working Group on its progress in implementing its agency-wide environmental justice strategy.

(g) Federal agencies shall provide additional periodic reports to the Working Group as requested by the Working Group.

1-104. Reports to the President. Within 14 months of the date of this order, the Working Group shall submit to the President, through the Office of the Deputy Assistant to the President for Environmental Policy and the Office of the Assistant to the President for Domestic Policy, a report that describes the implementation of this order, and includes the final environmental justice strategies described in section 1-103(e) of this order.

Sec. 2-2. FEDERAL AGENCY RESPONSIBILITIES FOR FEDERAL PROGRAMS. Each Federal agency shall conduct its programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including popu-

lations) to discrimination under, such programs, policies, and activities, because of their race, color, or national origin.

Sec. 3-3. RESEARCH, DATA COLLECTION, AND ANALYSIS.

3-301. Human Health and Environmental Research and Analysis. (a) Environmental human health research, whenever practicable and appropriate, shall include diverse segments of the population in epidemiological and clinical studies, including segments at high risk from environmental hazards, such as minority populations, low-income populations and workers who may be exposed to substantial environmental hazards.

(b) Environmental human health analyses, whenever practicable and appropriate, shall identify multiple and cumulative exposures.

(c) Federal agencies shall provide minority populations and low-income populations the opportunity to comment on the development and design of research strategies undertaken pursuant to this order.

3-302. Human Health and Environmental Data Collection and Analysis. To the extent permitted by existing law, including the Privacy Act, as amended (5 U.S.C. section 552a): (a) each Federal agency, whenever practicable and appropriate, shall collect, maintain, and analyze information assessing and comparing environmental and human health risks borne by populations identified by race, national origin, or income. To the extent practical and appropriate, Federal agencies shall use this information to determine whether their programs, policies, and activities have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations:

(b) In connection with the development and implementation of agency strategies in section 1-103 of this order, each Federal agency, whenever practicable and appropriate, shall collect, maintain and analyze information on the race, national origin, income level, and other readily accessible and appropriate information for areas surrounding facilities or sites expected to have a substantial environmental, human health, or economic effect on the surrounding populations, when such facilities or sites become the subject of a substantial Federal environmental administrative or judicial action. Such information shall be made available to the public, unless prohibited by law; and

(c) Each Federal agency, whenever practicable and appropriate, shall collect, maintain, and analyze information on the race, national origin, income level, and other readily accessible and appropriate information for areas surrounding Federal facilities that are: (1) subject to the reporting requirements under the Emergency Planning and Community Right-to-Know Act, 42 U.S.C. section 11001-11050 as mandated in Executive Order No. 12856; and (2) expected to have a substantial environmental, human health, or economic effect on surrounding populations. Such information shall be made available to the public, unless prohibited by law.

(d) In carrying out the responsibilities in this section, each Federal agency, whenever practicable and appropriate, shall share information and eliminate unnecessary duplication of efforts through the use of existing data systems and cooperative agreements among Federal agencies and with State, local, and tribal governments.

Sec. 4-4. SUBSISTENCE CONSUMPTION OF FISH AND WILDLIFE.

4-401. Consumption Patterns. In order to assist in identifying the need for ensuring protection of populations with differential patterns of subsistence consumption of fish and wildlife, Federal agencies, whenever practicable and appropriate, shall collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. Federal agencies shall communicate to the public the risks of those consumption patterns.

4-402. Guidance. Federal agencies, whenever practicable and appropriate, shall work in a coordinated manner to publish guidance reflecting the latest scientific information available concerning methods for evaluating the human health risks associated with the consumption of pollutant-bearing fish or wildlife. Agencies shall consider such guidance in developing their policies and rules.

Sec. 5-5. PUBLIC PARTICIPATION AND ACCESS TO INFORMATION. (a) The public may submit recommendations to Federal agencies relating to the incorporation of environmental justice principles into Federal agency programs or policies. Each Federal agency shall convey such recommendations to the Working Group.

(b) Each Federal agency may, whenever practicable and appropriate, translate crucial public documents, notices, and hearings relating to human health or the environment for limited English speaking populations.

(c) Each Federal agency shall work to ensure that public documents, notices, and hearings relating to human health or the environment are concise, understandable, and readily accessible to the public.

(d) The Working Group shall hold public meetings, as appropriate, for the purpose of fact-finding, receiving public comments, and conducting inquiries concerning environmental justice. The Working Group shall prepare for public review a summary of the comments and recommendations discussed at the public meetings.

Sec. 6-6. GENERAL PROVISIONS.

6-601. Responsibility for Agency Implementation. The head of each Federal agency shall be responsible for ensuring compliance with this order. Each Federal agency shall conduct internal reviews and take such other steps as may be necessary to monitor compliance with this order.

6-602. Executive Order No. 12250. This Executive order is intended to supplement but not supersede Executive Order No. 12250, which requires consistent and effective implementation of various laws prohibiting discriminatory practices in programs receiving Federal financial assistance. Nothing herein shall limit the effect or mandate of Executive Order No. 12250.

6-603. Executive Order No. 12875. This Executive order is not intended to limit the effect or mandate of Executive Order No. 12875.

6-604. Scope. For purposes of this order, Federal agency means any agency on the Working Group, and such other agencies as may be designated by the President, that conducts any Federal program or activity that substantially affects human health or the environment. Independent agencies are requested to comply with the provisions of this order.

6-605. Petitions for Exemptions. The head of a Federal agency may petition the President for an exemption from the requirements of this order on the grounds that all or some of the petitioning agency's programs or activities should not be subject to the requirements of this order.

6-606. Native American Programs. Each Federal agency responsibility set forth under this order shall apply equally to Native American programs. In addition, the Department of the Interior, in coordination with the Working Group, and, after consultation with tribal leaders, shall coordinate steps to be taken pursuant to this order that address Federally-recognized Indian Tribes.

6-607. Costs. Unless otherwise provided by law, Federal agencies shall assume the financial costs of complying with this order.

6-608. General. Federal agencies shall implement this order consistent with, and to the extent permitted by, existing law.

6-609. Judicial Review. This order is intended only to improve the internal management of the executive branch and is not intended to, nor does it create any right, benefit, or trust responsibility, substantive or procedural.

enforceable at law or equity by a party against the United States, its agencies, its officers, or any person. This order shall not be construed to create any right to judicial review involving the compliance or noncompliance of the United States, its agencies, its officers, or any other person with this order.

William Clinton

THE WHITE HOUSE,
February 11, 1994.

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Billing code 3195-01-P

Editorial note: For the memorandum that was concurrently issued on Federal environmental program reform, see issue No. 6 of the *Weekly Compilation of Presidential Documents*.

APPENDIX D



**DRAFT
METHODOLOGY
ENVIRONMENTAL JUSTICE ANALYSIS
February 1996**

**Air Force Center for Environmental Excellence
Brooks Air Force Base, Texas**

FOR OFFICIAL USE ONLY

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1.0 INTRODUCTION

This model Environmental Justice methodology has been prepared under contract to the Air Force Center for Environmental Excellence (AFCEE) to serve as a guideline in the preparation of an Environmental Justice analysis as part of the environmental impact analysis process for proposed Air Force programs. This document is based on Air Force direction and experience in performing an Environmental Justice analysis for disposal and reuse of closing/realigning Air Force bases (specifically under Round III). The intent is to provide guidance in performing an Environmental Justice analysis that will be in accordance with Air Force methodology and that will ensure consistency among analyses prepared by different Air Force organizations. This document provides guidance and examples based on experience from closing Air Force bases; however, it is recognized that certain site-specific or program-specific conditions may warrant departure from the guidance provided here such as Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) activities. AFCEE coordination and approval should be sought before deviations are implemented. A glossary of terms and acronyms used in this document are provided in Appendix A. Appendix B provides example language for an Environmental Justice analysis.

The guidance provided by the Air Force is to conduct Environmental Justice analysis as part of the National Environmental Policy Act (NEPA) analysis for proposed Air Force programs. The Air Force has determined that the NEPA analysis is the most logical place to consider existing Environmental Justice conditions and possible disproportionately high and adverse human health and environmental effects to low-income and minority populations. However, Environmental Justice is not a legal part of NEPA, since an Executive Order and any attachment documents can neither amend a federal statute or its implementing regulations. Please note that the guidance provided in this document can also be used for non-NEPA actions, such as CERCLA.

1.1 BACKGROUND

Executive Order 12898, Environmental Justice, was issued by the President on February 11, 1994. Objectives of the Executive Order include development of federal agency implementation strategies, identification of low-income and minority populations where proposed federal actions may have disproportionately high and adverse human health and environmental effects, and participation of low-income and minority populations. Accompanying Executive Order 12898 was a Presidential Transmittal Memorandum, which referenced existing federal statutes and regulations to be used in conjunction with Executive Order 12898. One of the items in this memorandum was the use of the policies and procedures of the NEPA.

1 Specifically, the memorandum indicates that, "Each Federal agency shall
2 analyze the environmental effects, including human health, economic and
3 social effects, of Federal actions, including effects on minority communities
4 and low-income communities, when such analysis is required by the NEPA,
5 42 U.S.C. Section 4321 et seq."
6

7 The overall objective of Executive Order 12898 is to focus federal attention
8 on the environmental and human health conditions in low-income and
9 minority communities with the goal of achieving environmental justice. The
10 order is also intended to promote nondiscrimination in federal programs
11 substantially affecting human health and the environment and to provide
12 information on, and the opportunity for public participation in, matters
13 relating to human health and the environment. Appendix C provides a copy
14 of Executive Order 12898.
15

16 In response to the Executive Order, the AFCEE developed guidance for the
17 development of an environmental justice analysis. This guidance was
18 provided in a memorandum in October 1995. A copy of this memorandum is
19 provided in Appendix D.

2.0 METHODOLOGY

The following sections provide the methodology for the development of an Environmental Justice analysis. Figure 2.1-1 provides the approach for the decisions to be made as part of the analysis.

2.1 IDENTIFICATION OF LOW-INCOME AND MINORITY POPULATIONS

The identification of low-income and minority populations involves determining the Region of Comparison (ROC), obtaining and analyzing census data, and identifying census areas within the ROC that have disproportionately high low-income and/or minority populations. Public outreach is conducted to improve opportunities for low-income and minority groups to participate in the Environmental Justice process.

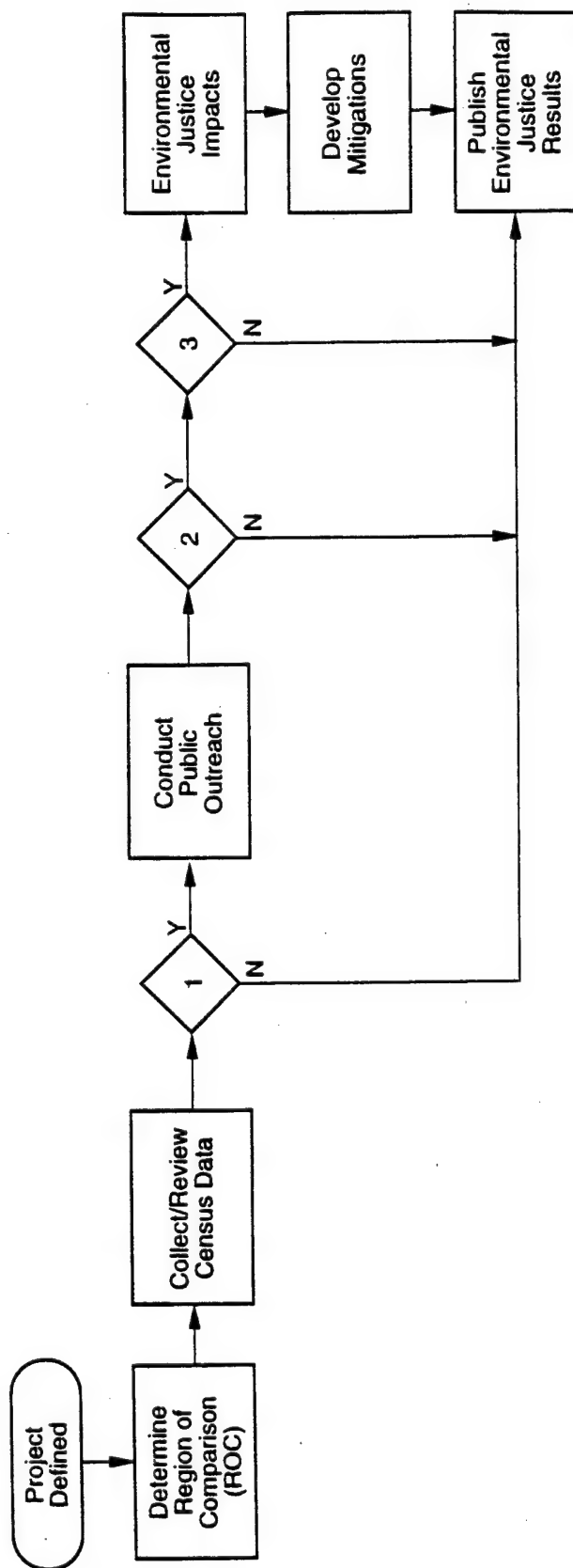
2.1.1 Region of Comparison

The ROC for Environmental Justice impacts is defined as the smallest political unit (e.g., city, township, or county) that encompasses the area in which the majority of environmental impacts associated with an action or its alternatives would occur. For example, in a NEPA analysis, a Region of Influence (ROI) for each resource is defined for the area where potential impacts would occur to that resource from program activities. The ROC would be the smallest political unit that encompasses all the ROIs for the resources analyzed. For resource impacts that equally affect everyone residing in an area, such as impacts to basinwide air quality, a large ROC (e.g., southern California) may not need to be considered, because the impacts would not disproportionately affect any one group. The overall percentages of low-income and minority populations within the ROC are used to determine disproportionately high minority and/or low-income populations that could be affected by a proposed project. Examples of ROCs are as follows:

- For the disposal and reuse of Plattsburgh Air Force Base (AFB), because all environmental impacts were expected to occur within the county surrounding the base, the ROC was defined as Clinton County, New York.
- For CERCLA activities where a groundwater plume may extend off base, the ROC could be limited to the city surrounding the base.

2.1.2 Census Data

The most recent U.S. Bureau of the Census data for the identified ROC should be obtained. The two sources of data used for Environmental Justice analysis are:



1. Determine if low-income/minority populations are in ROC.
2. Are there any disproportionately high and adverse off-base impacts?
3. Does the Resource Adverse Impact Footprint overlay disproportionately high low-income and minority populations?

Environmental Justice Approach
Figure 2.1-1

- The Topographically Integrated Geographic Encoding and Referencing (TIGER) files
- The Summary Tape File 3, containing the most recent Census of Population and Housing data.

Both sources contain statistics for three census jurisdictions: state, county, and either block numbering areas (BNAs) or census tracts. These sources are available on CD-ROM from the U.S. Bureau of the Census by contacting:

U.S. Department of Commerce
Bureau of the Census
Data User Services Division
Washington, DC 20233
(301) 763-4100

The TIGER files contain Geographic Information System (GIS) data showing the BNAs or census tracts in a county in graphic form. The TIGER files should be used to create a plot of the BNAs/census tracts in the ROC. Figure 2.1-2 shows the census tracts in Clinton County, New York.

The Summary Tape File provides population and poverty status statistics. The two tables used are Table P-12, Hispanic Origin by Race, and Table P-119, Poverty Status in 1989 by Race by Age. Tables 2.1-1 and 2.1-2 show examples of Tables P-12 and P-119 respectively for two census tracts (1001 and 1003) in Clinton County. The statistics are retrieved from the CD-ROM and inserted into spreadsheets. Table 2.1-3 shows part of a spreadsheet containing data for census tracts in Clinton County, including Tracts 1001 and 1003.

Table P-12, Hispanic Origin by Race, reports population by Persons Not of Hispanic Origin and Persons of Hispanic Origin separately. The data for both Persons Not of Hispanic Origin and Persons of Hispanic Origin are subdivided by racial categories of White; Black; American Indian, Eskimo, or Aleut; Asian or Pacific Islander; and Other. All persons of Hispanic origin, regardless of race, and all persons not of Hispanic origin other than White are considered minority groups. These are summed to obtain the total minority population within each BNA/census tract in the ROC. An example of calculating the minority population from Table 2.1-1 (Census Table P-12) is as follows:

1. Add total of all Persons of Hispanic Origin. For Clinton County Census Tract 1001, this would be 19 White and 8 Other persons for a total of 27 Persons of Hispanic Origin.



EXPLANATION

- Clinton County Boundary
- Census Tract Boundary
- 1001 Census Tract Designation

Clinton County Census Tracts



Figure 2.1-2

Table 2.1-1. Summary Tape File 3, Table P-12, Hispanic Origin by Race

1990 Census Of Population And Housing Summary Tape File 3A

040 New York
050 Clinton County
140 Tract 1001

HISPANIC ORIGIN BY RACE
Universe: Persons

Not of Hispanic origin:	5,725
White.....	16
Black.....	6
American Indian, Eskimo, or Aleut.....	22
Asian or Pacific Islander.....	0
Other race.....	0
Hispanic origin:	19
White.....	0
Black.....	0
American Indian, Eskimo, or Aleut.....	0
Asian or Pacific Islander.....	0
Other race.....	8

1990 Census Of Population And Housing Summary Tape File 3A

040 New York
050 Clinton County
140 Tract 1003

HISPANIC ORIGIN BY RACE
Universe: Persons

Not of Hispanic origin:	5,090
White.....	362
Black.....	10
American Indian, Eskimo, or Aleut.....	9
Asian or Pacific Islander.....	0
Other race.....	0
Hispanic origin:	128
White.....	54
Black.....	3
American Indian, Eskimo, or Aleut.....	0
Asian or Pacific Islander.....	0
Other race.....	114

Table 2.1-2. Summary Tape File 3, Table P-119, Poverty Status in 1989 by Race by Age
(Page 1 of 4)

1990 Census Of Population And Housing Summary Tape File 3A

040 New York
050 Clinton County
140 Tract 1001

POVERTY STATUS IN 1989 BY RACE BY AGE

Universe: Persons for whom poverty status is determined

Income in 1989 above poverty level:

White:

Under 5 years.....	338
5 years.....	47
6 to 11 years.....	465
12 to 17 years.....	470
18 to 64 years.....	3,099
65 to 74 years.....	347
75 years and over.....	216

Black:

Under 5 years.....	0
5 years.....	0
6 to 11 years.....	2
12 to 17 years.....	2
18 to 64 years.....	8
65 to 74 years.....	0
75 years and over.....	0

American Indian, Eskimo, or Aleut:

Under 5 years.....	2
5 years.....	2
6 to 11 years.....	0
12 to 17 years.....	0
18 to 64 years.....	2
65 to 74 years.....	0
75 years and over.....	0

Asian or Pacific Islander:

Under 5 years.....	4
5 years.....	0
6 to 11 years.....	0
12 to 17 years.....	0
18 to 64 years.....	16
65 to 74 years.....	0
75 years and over.....	2

Other race:

Under 5 years.....	4
5 years.....	0
6 to 11 years.....	2
12 to 17 years.....	0
18 to 64 years.....	2
65 to 74 years.....	0
75 years and over.....	0

Income in 1989 below poverty level:

White:

Under 5 years.....	55
5 years.....	6
6 to 11 years.....	70
12 to 17 years.....	56
18 to 64 years.....	329
65 to 74 years.....	79
75 years and over.....	84

Table 2.1-2. Summary Tape File 3, Table P-119, Poverty Status in 1989 by Race by Age
(Page 2 of 4)

Black:	
Under 5 years.....	0
5 years.....	0
6 to 11 years.....	0
12 to 17 years.....	0
18 to 64 years.....	0
65 to 74 years.....	0
75 years and over.....	0
American Indian, Eskimo, or Aleut:	
Under 5 years.....	0
5 years.....	0
6 to 11 years.....	0
12 to 17 years.....	0
18 to 64 years.....	0
65 to 74 years.....	0
75 years and over.....	0
Asian or Pacific Islander:	
Under 5 years.....	0
5 years.....	0
6 to 11 years.....	0
12 to 17 years.....	0
18 to 64 years.....	0
65 to 74 years.....	0
75 years and over.....	0
Other race:	
Under 5 years.....	0
5 years.....	0
6 to 11 years.....	0
12 to 17 years.....	0
18 to 64 years.....	0
65 to 74 years.....	0
75 years and over.....	0

Table 2.1-2. Summary Tape File 3, Table P-119, Poverty Status in 1989 by Race by Age
(Page 3 of 4)

1990 Census Of Population And Housing Summary Tape File 3A

040 New York
050 Clinton County
140 Tract 1003

POVERTY STATUS IN 1989 BY RACE BY AGE

Universe: Persons for whom poverty status is determined

Income in 1989 above poverty level:

White:

Under 5 years.....	342
5 years.....	91
6 to 11 years.....	397
12 to 17 years.....	405
18 to 64 years.....	2,644
65 to 74 years.....	241
75 years and over.....	148

Black:

Under 5 years.....	0
5 years.....	0
6 to 11 years.....	0
12 to 17 years.....	0
18 to 64 years.....	10
65 to 74 years.....	4
75 years and over.....	0

American Indian, Eskimo, or Aleut:

Under 5 years.....	0
5 years.....	0
6 to 11 years.....	4
12 to 17 years.....	0
18 to 64 years.....	9
65 to 74 years.....	0
75 years and over.....	0

Asian or Pacific Islander:

Under 5 years.....	2
5 years.....	0
6 to 11 years.....	2
12 to 17 years.....	0
18 to 64 years.....	3
65 to 74 years.....	0
75 years and over.....	0

Other race:

Under 5 years.....	0
5 years.....	0
6 to 11 years.....	0
12 to 17 years.....	0
18 to 64 years.....	0
65 to 74 years.....	0
75 years and over.....	0

Income in 1989 below poverty level:

White:

Under 5 years.....	97
5 years.....	14
6 to 11 years.....	88
12 to 17 years.....	53
18 to 64 years.....	425
65 to 74 years.....	40
75 years and over.....	78

Table 2.1-2. Summary Tape File 3, Table P-119, Poverty Status in 1989 by Race by Age
(Page 4 of 4)

Black:	
Under 5 years.....	0
5 years.....	0
6 to 11 years.....	0
12 to 17 years.....	0
18 to 64 years.....	0
65 to 74 years.....	2
75 years and over.....	0
American Indian, Eskimo, or Aleut:	
Under 5 years.....	0
5 years.....	0
6 to 11 years.....	0
12 to 17 years.....	0
18 to 64 years.....	0
65 to 74 years.....	0
75 years and over.....	0
Asian or Pacific Islander:	
Under 5 years.....	0
5 years.....	0
6 to 11 years.....	0
12 to 17 years.....	0
18 to 64 years.....	2
65 to 74 years.....	0
75 years and over.....	0
Other race:	
Under 5 years.....	0
5 years.....	0
6 to 11 years.....	0
12 to 17 years.....	0
18 to 64 years.....	0
65 to 74 years.....	0
75 years and over.....	0

Table 2.1-4. Plattsburgh AFB Demographic C - Summary - Clinton County

CENSUS CATEGORY	COUNTY TOTAL	% OF COUNTY TOTAL	TRACT 1001 TOTAL	% OF TRACT TOTAL	TRACT 1002 TOTAL	% OF TRACT TOTAL	TRACT 1003 TOTAL	% OF TRACT TOTAL	TRACT 1004 TOTAL	% OF TRACT TOTAL
PERSONS	85,969	100.00	5,796	100.00	3,890	100.00	5,770	100.00	4,877	100.00
WHITE	79,653	92.65	5,725	98.78	3,879	99.72	5,090	88.21	4,666	95.67
MINORITY TOTAL	6,316	7.35	71	(1.22)	11	0.28	680	(11.79)	211	4.33
BLACK	3,318	3.86	16	0.28	5	0.13	362	6.27	110	2.26
AMERICAN INDIAN, ESKIMO, OR ALEUT	206	0.24	6	0.10	0	0.00	10	0.17	22	0.45
ASIAN OR PACIFIC ISLANDER	646	0.75	22	0.38	0	0.00	9	0.16	0	0.00
HISPANIC	2,109	2.45	27	0.47	6	0.15	299	5.18	79	1.62
OTHER	37	0.04	0	0.00	0	0.00	0	0.00	0	0.00
POVERTY STATUS IN 1989 BY RACE	77,723	100.00	5,709	100.00	3,863	100.00	5,101	100.00	4,701	100.00
INCOME IN 1989 ABOVE POVERTY LEVEL	87,429	86.76	5,030	88.11	3,452	89.36	4,302	84.34	3,859	82.09
WHITE	65,445	84.20	4,982	87.27	3,447	89.23	4,268	83.67	3,835	81.58
MINORITY TOTAL	1,984	2.55	48	0.84	5	0.13	34	0.67	24	0.51
BLACK	997	1.28	12	0.21	5	0.13	14	0.27	2	0.04
AMERICAN INDIAN, ESKIMO, OR ALEUT	171	0.22	6	0.11	0	0.00	13	0.25	22	0.47
ASIAN OR PACIFIC ISLANDER	557	0.72	22	0.39	0	0.00	7	0.14	0	0.00
OTHER	259	0.33	8	0.14	0	0.00	0	0.00	0	0.00
INCOME IN 1989 BELOW POVERTY LEVEL	10,294	13.24	679	(11.89)	411	(10.64)	799	(15.66)	842	17.91
WHITE	9,967	12.82	679	(11.89)	411	(10.64)	795	(15.59)	842	17.91
MINORITY TOTAL	327	0.42	0	0.00	0	0.00	4	0.08	0	0.00
BLACK	216	0.28	0	0.00	0	0.00	2	0.04	0	0.00
AMERICAN INDIAN, ESKIMO, OR ALEUT	26	0.03	0	0.00	0	0.00	0	0.00	0	0.00
ASIAN OR PACIFIC ISLANDER	55	0.07	0	0.00	0	0.00	2	0.04	0	0.00
OTHER	30	0.04	0	0.00	0	0.00	0	0.00	0	0.00

2. Add total of all minority Persons Not of Hispanic Origin. For Census Tract 1001 this would be 16 Black, 6 American Indian, Eskimo, or Aleut, and 22 Asian or Pacific Islanders for a total of 44 minority Persons Not of Hispanic Origin. The total Persons Not of Hispanic Origin should then be added to the 27 Persons of Hispanic Origin for a total minority population for this Census Tract of 71.
3. The above data are entered into the spreadsheets for each census tract (see Table 2.1-3).

The other census tract shown in Table 2.1-1, Census Tract 1003, has a minority total of 680 persons.

Table P-119, Poverty Status in 1989 by Race by Age, reports the number of persons above and below the poverty level, which was \$12,674 for a family of four in 1989. The data are reported by the racial categories of White; Black; American Indian, Eskimo, or Aleut; Asian or Pacific Islander; and Other, but does not separate Persons Not of Hispanic Origin and Persons of Hispanic Origin. Each of these five racial categories are subdivided by the seven age ranges of under 5 years, 5 years, 6 to 11 years, 12 to 17 years, 18 to 64 years, 65 to 74 years, and 75 years and over. These age ranges within each racial group are aggregated to obtain the total number of people in each BNA/Census Tract living above and below the poverty level in each of the five racial categories. The number of people in racial categories living above and below the poverty level were summed to obtain the total population living above and below the poverty level within each BNA/census tract in the ROC. An example of calculating the low-income population from Table 2.1-2 (Census Table P-119) is as follows:

1. Add population above poverty level. For Clinton County Census Tract 1001, this would be 4,982 White; 12 Black; 6 American Indian, Eskimo, or Aleut; 22 Asian or Pacific Islander; and 8 Other persons for a total of 5,030 persons above the poverty level.
2. Add population below the poverty level. For Census Tract 1001 this would be 679 White persons.
3. The above data are entered into the spreadsheets for each census tract (see Table 2.1-3).

The other census tract shown in Table 2.1-2, Census Tract 1003, has totals of 4,302 persons living above and 799 persons living below the poverty level.

Data from all the BNAs/census tracts within the ROC are summed to produce ROC totals for these statistics. The ROC totals are also entered into the

spreadsheet containing the data for each BNA/census tract. The minority and poverty level statistics for each category within each BNA/census tract are compared to the BNA/census tract total population to determine the percentage of low-income and minority persons in that BNA/census tract. An example of calculating the low-income and minority population percentages for each BNA/census tract using Table 2.1-3, Census Tract 1001, is as follows:

1. Minority percentage. Divide the minority total (71) by the total population (5,796) to obtain the minority percentage for Census Tract 1001 of 1.22 percent.
2. Low-income percentage. Divide the income below the poverty level (679) by the total population for which income data was taken (5,709) to obtain the low-income level percentage for Census Tract 1001 of 11.89 percent.
3. Steps 1 and 2 should be repeated to calculate the ROC (Clinton County) totals using the data from each individual census tract. In the example shown in Table 2.1-4, the Clinton County (ROC) average minority population is 7.35 percent and the low-income population is 13.24 percent.

The population and poverty status statistics cannot be directly compared for two reasons. The first reason is the poverty status does not capture all of the reported population. This is mainly due to incomplete reporting by respondents to the census questionnaire. For example, for Census Tract 1001, total population listed by racial breakdown is 5,796, whereas the total population for above and below the poverty level is only 5,709 (see Table 2.1-3). Therefore, the poverty status statistics are only a sample of the total population in a jurisdiction. The second reason is the way in which each statistic is reported by the census. The population statistic is broken down into Persons Not of Hispanic Origin and Persons of Hispanic Origin. The poverty status statistic combines these categories without reporting each individually. In Census Tract 1003 (see Table 2.1-3) the total of 5,725 White persons reported in the population statistic cannot be compared to the 4,982 and 679 White persons above and below the poverty level respectively (total of 5,661). This is because the population statistic includes only Whites not of Hispanic origin whereas the poverty statistic combines Whites both of Hispanic origin and not of Hispanic origin, and because of incomplete reporting regarding income as just described.

2.1.3 Determination of Minority and Low-Income Populations for Environmental Justice

To identify disproportionately high low-income and minority areas, the percentage of each of these groups within each BNA/census tract is

1 compared to the overall ROC percentage for these categories. If the
2 percentage of minority or low-income persons for a BNA/census tract is
3 greater than the corresponding ROC percentage, the BNA/census tract is
4 identified as being disproportionately high for that factor. An example of
5 determining disproportionate low-income and minority BNA/census tracts in
6 the ROC follows:

- 7
8 1. Table 2.1-4 presents the percentage of minority and low-
9 income populations in census tracts in the ROC. Compare
10 each BNA/census tract low-income and minority percent to
11 the ROC percent. For Census Tract 1001, 1.22 percent
12 minority and 11.89 percent low-income is compared to the
13 ROC (Clinton County) average percent of 7.35 percent
14 minority and 13.24 percent low-income. Because both the
15 low-income and minority percentages for Census Tract 1001
16 are below the ROC percent, this census tract is not
17 considered to have a disproportionately high low-income or
18 minority population. However, Census Tract 1003 is
19 11.79 percent minority and 15.66 percent low-income,
20 which is above the ROC average percentage and, therefore,
21 is considered both a disproportionately high low-income area
22 and disproportionately high minority area.
- 23
24 2. The above calculations should be conducted for each
25 BNA/census tract within the ROC and put in a table similar to
26 Table 2.1-5.
- 27
28 3. Map disproportionately high low-income and minority
29 populations. Using the data from Table 2.1-4 and the map
30 showing the census tracts (see Figure 2.1-2) obtained from
31 the TIGER files, identify the disproportionately high low-
32 income and minority populations for the ROC (Figure 2.1-3).

33 34 2.1.4 Public Outreach

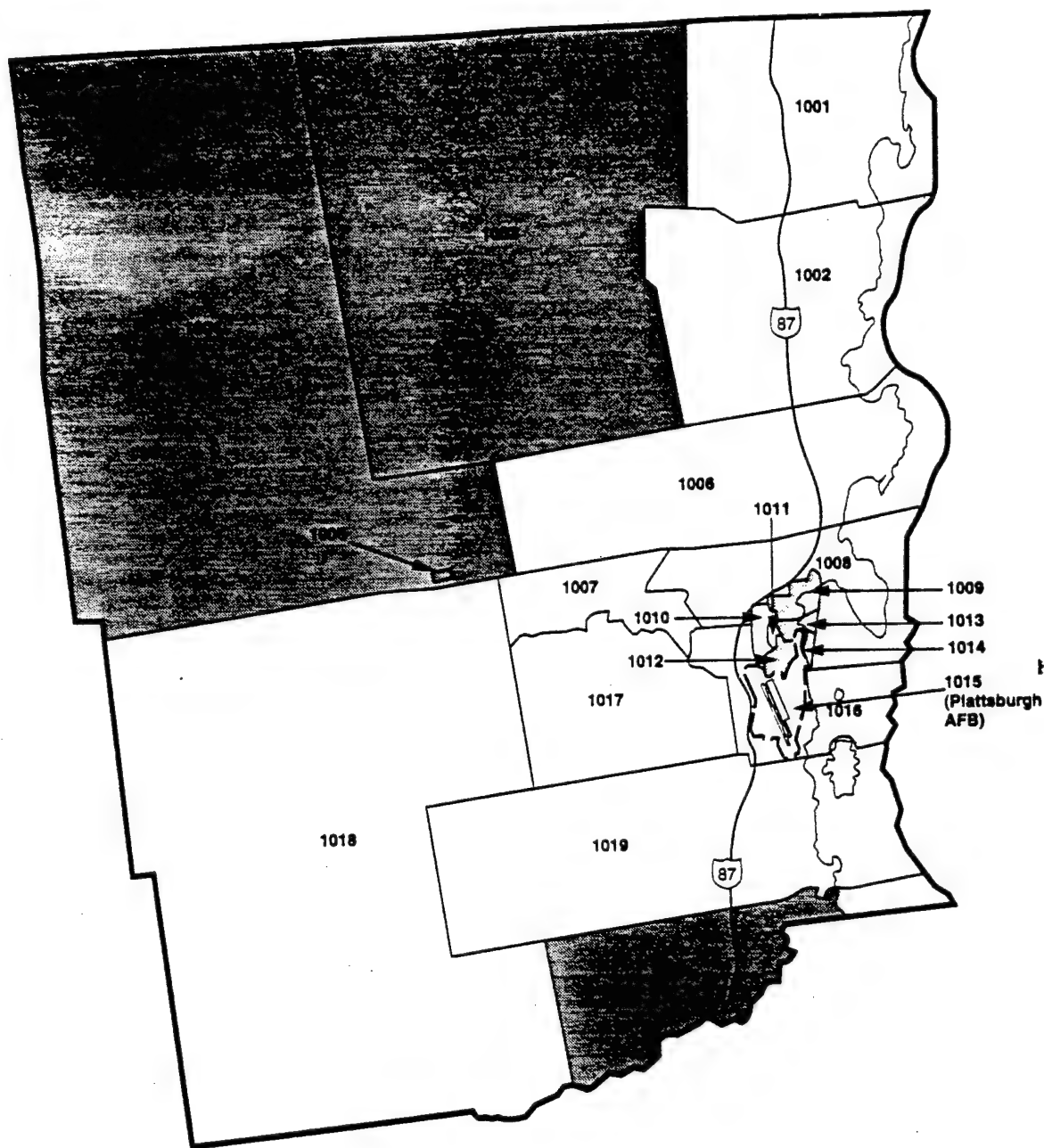
35
36 An essential part of Executive Order 12898 is to provide the opportunity for
37 low-income and minority populations to participate in and have access to
38 information on Department of Defense (DOD) policy and practices that affect
39 human health and the environment. Public outreach should be conducted
40 during the beginning of the planning stage of a project (i.e., during scoping
41 for a NEPA analysis) and carried throughout the process. Public outreach
42 and advertising of the process should be directed at low-income and minority
43 groups, as well as the general public, to encourage these groups to identify
44 themselves and their concerns. This effort should include coordination with
45 federal, state, local, and tribal governments and agencies; local groups;
46 community leaders; and social agencies in the local community to identify
47 target groups and the channels (including non-English language, where
48 necessary) that would reach these groups.

Table 2.1-4. Census Tract in Clinton County

	Percent Minority	Disproportionate ^(a)	Percent Low Income ^(b)	Disproportionate ^(a)
United States	16.08	--	13.51	--
New York	30.58	--	13.03	--
Clinton County	7.35	--	13.24	--
Census Tract in Clinton County				
1001	1.22	N	11.89	N
1002	0.28	N	10.64	N
1003	11.79	Y	15.66	Y
1004	4.33	N	17.91	Y
1005	75.54	Y	0	N
1006	0.69	N	9.41	N
1007	0	N	7.07	N
1008	4.19	N	10.92	N
1009	4.68	N	15.46	Y
1010	5.32	N	4.61	N
1011	7.22	N	100.00	Y
1012	6.33	N	26.74	Y
1013	5.77	N	33.67	Y
1014	10.77	Y	4.09	N
1015 ^(c)	20.94	Y	5.40	N
1016	3.37	N	13.21	N
1017	1.97	N	12.05	N
1018	1.01	N	12.70	N
1019	2.90	N	9.74	N
1020	1.82	N	14.99	Y

- Notes: (a) Disproportionality exists if the census tract percentage is higher than the Clinton County percentage.
 (b) Low income is defined as below poverty level (\$12,764 for a family of four in 1989, as reported in the 1990 Census of Population and Housing).
 (c) Census Tract 1015 consists of the area of Plattsburgh AFB. Based on 1990 census data, Census Tract 1015 is disproportionate because of a higher minority population than the county average. However, since closure, the base population is zero; therefore, Census Tract 1015 is not considered disproportionate in this environmental justice analysis.

Source: U.S. Bureau of the Census, 1991.



EXPLANATION

— Clinton County Boundary

— Census Tract Boundary

- - - Base Boundary

1001 Census Tract Designation



Disproportionate Census Tracts



Interstate Highway



Lake Champlain

**Plattsburgh AFB/
Clinton County
Minority/Low Income
Census Tracts**



Figure 2-13

1 The above groups may be identified in several ways. Initial outreach can be
2 conducted by contacting organizations such as the local chapters of:

- 3
- 4 • The National Association for the Advancement of Colored People
5 (NAACP)
 - 6
 - 7 • Salvation Army
 - 8
 - 9 • Churches, food banks, and community centers
 - 10
 - 11 • Local government offices, such as housing authority, economic
12 development and planning departments, and public health and public
13 social services.
 - 14

15 These agencies can be found in the local phone directory (e.g., yellow pages)
16 or identified during the scoping process as part of NEPA. Other
17 communication channels include newspaper ads, radio announcements,
18 newsletters, flyers, and posters. On the initial contact with these groups the
19 following should be conducted:

- 20
- 21 • Identify the purpose of the contact
 - 22
 - 23 • Confirm that the organization does serve or represent a low-income
24 or minority group
 - 25
 - 26 • Make sure the agency can provide the target group access to project
27 information materials (such as public centers and assistance desks)
 - 28
 - 29 • Obtain the agency's mailing address
 - 30
 - 31 • Ask if they can provide additional low-income or minority group
32 contacts
 - 33
 - 34 • Notify the contact that they have been identified as part of the Air
35 Force outreach effort under Executive Order 12898 and that issues
36 and concerns raised by these groups will be considered in the
37 planning process.
 - 38

39 For a proposed action involving disposal of Air Force property, groups
40 requesting property as part of the disposal and reuse process, such as
41 homeless or low-income advocacy groups or Native Americans should be
42 contacted during the initial phase of the outreach effort. All low-income and
43 minority groups thus identified should be specifically notified of the
44 availability of any information requesting input into the planning process and
45 any subsequent Environmental Justice documents available for review.
46 Figures 2.1-4 and 2.1-5 provide examples of public outreach notifications.
47

MEMORANDUM FOR INTERESTED ORGANIZATIONS

FROM: HQ USAF/CEV
1260 Air Force Pentagon
Washington, DC 20330-1260

SUBJECT: Environmental Justice Planning for Incorporation into the Environmental Impact Statement (EIS) for Realignment of 934th ARW to Sample AFB, TX

We are pleased to provide you the attached project description for the proposed Realignment of the 934th ARW to Sample AFB, TX. The Environmental Justice analysis that will be prepared will be Pursuant to Presidential Executive Order 12898, Environmental Justice. The analysis will include an identification of potential disproportionately high and adverse environmental impacts to disproportionately high minority populations and low-income populations resulting from the Realignment of the 934th ARW.

Although an Environmental Justice analysis is not required as part of the National Environmental Policy ACT (NEPA) implementation, the Air Force has determined that the EIS is the appropriate place to consider possible Environmental Justice impacts from the Realignment of the 934th ARW.

Your organization has been identified by the Air Force as part of the outreach effort under Executive Order 12898. Issues and concerns raised by your organization and its constituents will be considered in the planning process for the proposed realignment. In addition, if you are familiar with any other organizations that should be included in the planning processes please provide them a copy of this memorandum or contact the Air Force at the number listed below.

To ensure sufficient time to adequately consider public comments concerning issues associated with the proposed realignment, the Air Force recommends that comments be presented at the November 3, 1996 Scoping Meeting at the Town Hilton at 7:00 p.m. for the EIS or forwarded to the address listed below at the earliest possible date. The Air Force will, however, accept additional comments at any time during the environmental impact analysis process.

Please direct written comments or request for further information concerning the proposed Realignment of the 934th ARW to:

Colonel Air Force
AFCEE/ECM
Chennault Road
Brooks AFB, TX 78235-5318
(210) 536-0000

**Public Outreach
Notification,
Example A**

Figure 2.1-4

MEMORANDUM FOR INTERESTED ORGANIZATIONS

FROM: HQ USAF/CEV
1260 Air Force Pentagon
Washington, DC 20330-1260

**SUBJECT: Environmental Justice Planning for Comprehensive Environmental Response,
Compensation, and Liability Act (CERCLA) Activities at Sample AFB, TX**

We are pleased to provide you the attached Environmental Justice Analysis for CERCLA activities at Sample AFB, TX. The Environmental Justice analysis was prepared Pursuant to Presidential Executive Order 12898, Environmental Justice. The analysis included an identification of potential disproportionately high and adverse environmental impacts to disproportionately high minority populations and low-income populations resulting from the CERCLA activities.

Your organization has been identified by the Air Force as part of the outreach effort under Executive Order 12898. Issues and concerns raised by your organization and its constituents on the attached document will be considered in the Final Environmental Justice analysis and in the CERCLA activities at Sample AFB.

Comments to the Environmental Justice analysis will be accepted through 15 January 1996. The Final Environmental Justice analysis will incorporate issues and concerns raised during the review period.

Please direct written comments or request for further information concerning the Environmental Justice analysis and CERCLA activities to:

Colonel Air Force
AFCEE/ECM
Chennault Road
Brooks AFB, TX 78235-5318
(210) 536-0000

**Public Outreach
Notification,
Example B**

Figure 2.1-5

3.0 ENVIRONMENTAL JUSTICE IMPACT ANALYSIS

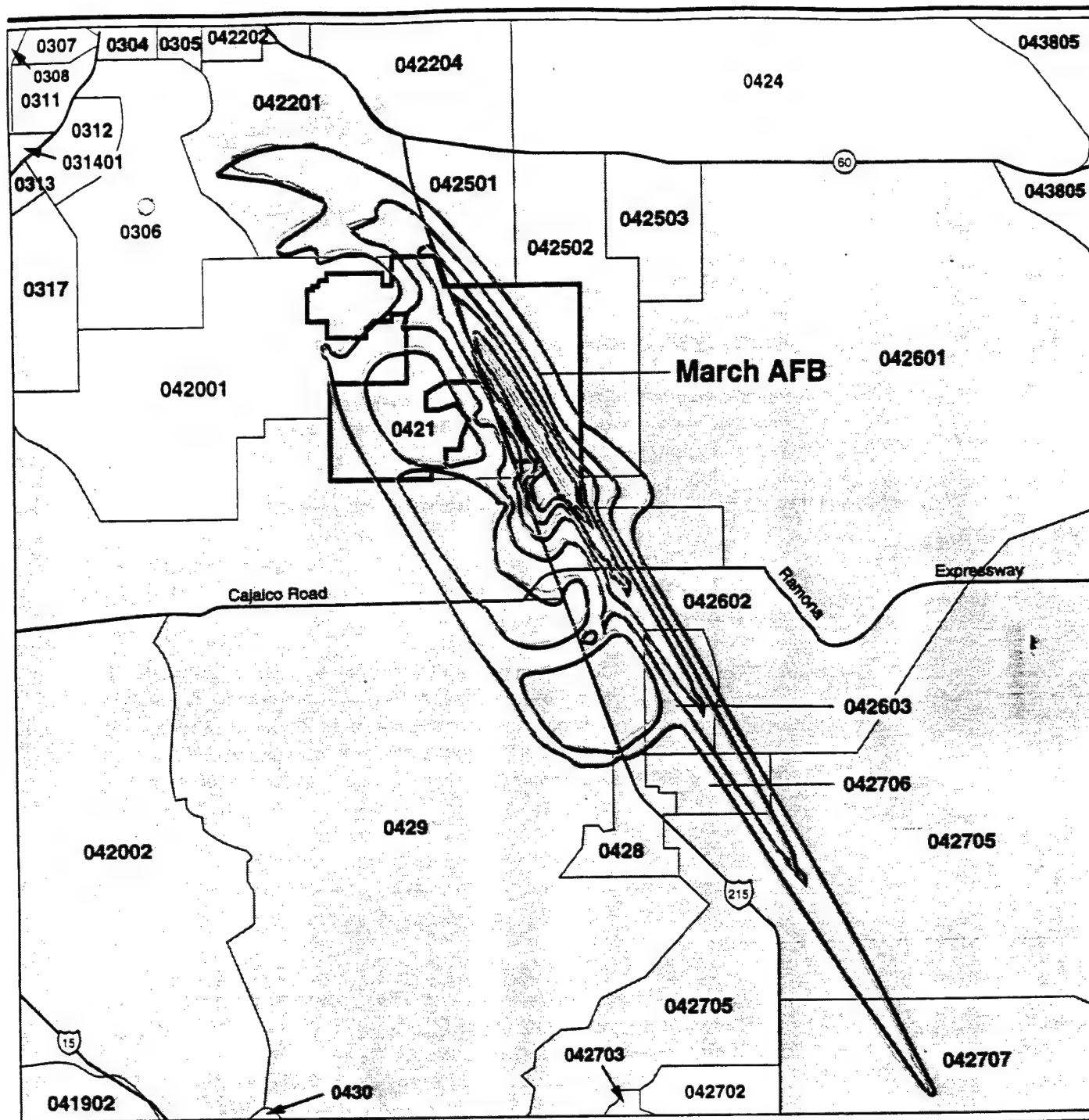
An environmental justice impact analysis involves determining the areas in which adverse environmental impacts from the proposed project would occur, determining if these resource adverse impact "footprints" (RAIF) overlies any BNAs/census tracts identified as disproportionately high low-income and/or minority, and verifying whether any residential areas are located in the affected parts of these BNAs/census tracts. Potential environmental justice impacts are identified if disproportionately high and adverse environmental impacts would occur in a residential area within a BNA/census tract identified as having a disproportionately high low-income and/or minority population.

3.1 IDENTIFICATION OF THE RESOURCE ADVERSE IMPACT FOOTPRINT

The RAIF is the geographic area that would be adversely affected by a proposed project. It is determined for each resource using the results of the environmental analysis.

To identify the RAIF, determine if a disproportionately high and adverse impact would be caused by the proposed project, as defined by applicable regulations and guidelines. For example, for a proposed project that would generate noise, an adverse noise impact may be defined as exposure above a certain decibel level. Those areas that would be subject to adverse noise levels from the proposed project that would not be exposed to such noise levels under the no-action alternative would be considered to be adversely affected. Areas that would be exposed to such noise levels under the no-action alternative would not be considered to be adversely affected by the proposed project. Adversely affected areas constitute the RAIF.

For noise impacts, an overlay comparison of no-action alternative to proposed project and alternative action noise contours can be used to identify the noise impact footprint. Figure 3.1-1 shows noise contours superimposed over census tracts surrounding March AFB, California. This figure was created for illustrative purposes using GIS plots of noise contours generated for the proposed action and no-action alternative. The GIS plots were generated at a large enough scale so that differences between the proposed action and no-action alternative could be accurately and easily discerned. To have a disproportionately high and adverse impact, the proposed project must have a more negative environmental effect on low-income and minority populations than the no-action alternative.



EXPLANATION

- | | | | |
|--------|--------------------------------|--|-----------------------|
| | Census Tract Boundary | | Proposed Action |
| | Disproportionate Census Tracts | | No-Action Alternative |
| 042002 | Census Tract Designation | | |
| | Interstate Highway | | |
| | State Highway | | |

**Increase in Aircraft Noise
(Proposed Action)**

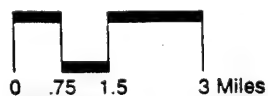


Figure 3.1-1

1 Examples of potential environmental justice impacts and resources that may
2 not be impacts are as follows:

3
4 **Potential Environmental Justice Impacts**

- 5
6
 - Impacts to surface water quality or flow in an area used for
7 recreational uses
 - Impacts to groundwater quality or levels in an area where
8 groundwater is used by residents
 - Local air quality impacts such as plumes from a point source or
9 traffic-related levels adjacent to a highway or at intersections
 - Impacts to fish and wildlife where these resources are consumed for
10 subsistence
 - Impacts to cultural or religious sites
 - Noise impacts caused by increased traffic or aircraft noise.

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22 **Non-Environmental Justice Adverse Impacts**

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24
 - Air quality or other impacts that equally affect everyone residing in
25 the ROC may not need to be considered because the impacts would
26 not disproportionately affect any one group.
 - Resources such as land use, aesthetics, transportation, and utilities
27 are considered influencing factors only (non-environmental
28 resources) and, therefore, would not have disproportionately high
29 and adverse human health and environmental effects on low-income
30 and minority populations. Note that these factors are used in
31 determining the impacts to environmental resources such as air
32 quality.

33
34
35
36 **3.2 AFFECTED LOW-INCOME AND MINORITY POPULATIONS**

37
38 Disproportionate BNAs or census tracts are identified as described in Section
39 2.1.4. To identify affected low-income and/or minority populations, compare
40 or overlay the RAIF for each resource area on a plot of the disproportionate
41 BNAs/census tracts in the ROC. Potential environmental justice impacts may
42 occur where the RAIF overlays disproportionate BNAs/census tracts and
43 where residential areas would be affected. Environmental justice impacts
44 should be considered as follows:

- 45
46
 - If disproportionately high and adverse environmental impacts occur
47 in a vacant, commercial, or industrial area, no environmental justice
48 impacts would be considered to occur. Impacts to areas where no
49 residential uses occur can be eliminated from further environmental
50 justice analysis.

- Where an RAIF overlays a disproportionately high low-income or minority BNA/census tract, and residential uses occur within the affected portion of the BNA/census tract, environmental justice impacts may occur. Therefore, field or ground truthing should be conducted to determine what land uses occur within the RAIF.

Ground truthing is conducted using the most recent aerial photographs that cover the areas of the RAIFs. The photographs are used to determine what land uses occur within the portion of the BNA/census tract within the RAIF. Field truthing may also be conducted to verify and update the conclusions of the aerial photograph review. Field and ground truthing are conducted only to determine land uses, not to verify income or minority status. For March AFB, GIS plots of noise contours were generated at the same scale as aerial photographs of the area so that the noise contours could be overlaid on the photographs. Although Figure 3.1-1 shows noise contours affecting a number of disproportionately high low-income or minority census tracts, ground truthing revealed that, based on residential land use, environmental justice impacts would potentially occur on only three of these census tracts.

When environmental justice impacts could occur, identify appropriate mitigation measures. The environmental justice mitigation discussion should summarize the mitigation measures identified in the NEPA analysis or other environmental document for that resource. Identify any specific or additional mitigations that would benefit environmental justice populations, and identify the party that would be responsible for implementing the mitigation measures.

APPENDIX E

3.5 ENVIRONMENTAL JUSTICE

3.5.1 Background

EO 12898, Environmental Justice, was issued by the President on February 11, 1994. Objectives of the EO, as it pertains to this reuse and disposal document, include development of federal agency implementation strategies, identification of low-income and minority populations potentially impacted because of proposed federal actions, and participation of low-income and minority populations. Accompanying EO 12898 was a Presidential Transmittal Memorandum which referenced existing federal statutes and regulations to be used in conjunction with EO 12898. One of the items in this memorandum was the use of the policies and procedures of the NEPA. Specifically, the memorandum indicates that, "Each Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority communities and low-income communities, when such analysis is required by the NEPA 42 U.S.C. Section 4321 et. seq."

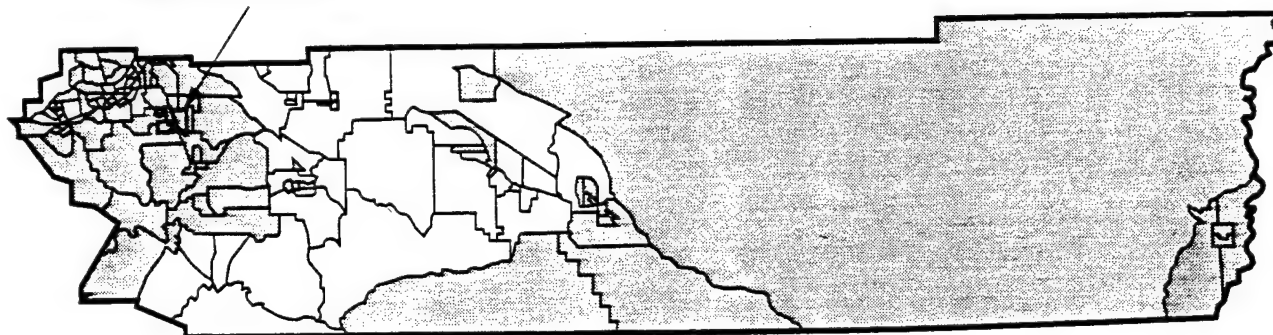
Environmental Justice is not a legal part of NEPA nor this document as an EO and any attachment documents can neither amend a federal statute nor its implementing regulations. However, an Environmental Justice analysis is included in this document as the latter is the most logical place to consider existing Environmental Justice conditions and possible impacts from reuse and disposal. Environmental justice analysis methods are described in Appendix L.

3.5.2 Demographic Analysis




The demographic analysis provides information on the approximate locations of low-income and minority populations in the area potentially affected by the disposal and reuse of March AFB property. Although the ROI for population and economic effects consists of Riverside and San Bernardino counties, most environmental impacts from disposal and reuse would occur within Riverside County. In developing statistics for the 1990 Census of Population and Housing, the U.S. Department of Commerce, Bureau of the Census, has identified small subdivisions used to group statistical census data. In metropolitan areas, these subdivisions are known as census tracts. Figure 3.5.1 shows the census tracts within Riverside County.

Tables from the 1990 Census of Population and Housing were used to extract data on low-income and minority populations within the census tracts in Riverside County. The census reports both minority and poverty status. Minority populations included in the census are identified as Black; American Indian, Eskimo or Aleut; Asian or Pacific Islander; Hispanic; or other. Poverty status (used in this EIS to define low-income status) is reported for families with income below poverty level (\$12,764 for a family of four in 1989, as reported in the 1990 Census of Population and Housing).

March Air Force Base



EXPLANATION

-  County Boundary
-  Census Tracts
-  High Minority/Low Income Populations

**Riverside County
Census Tracts**



Figure 3.5-1

In order to determine whether an individual census tract contains a disproportionately high low-income or minority population, data for each tract were compared to data for the regional political jurisdiction surrounding the tract. For this analysis, this region of comparison (ROC) is defined as Riverside County. The environmental impact analysis indicates that all potential impacts would occur within Riverside County. Based upon the 1990 Census of Population and Housing, Riverside County had a population of 1,170,413 persons. Of this total, 113,479 persons, or 17.07 percent, were low income; and 412,704 persons, or 35.26 percent, were minority.

Riverside County is subdivided into 124 census tracts, of which 85 have a higher percentage of low-income or minority population than the county as a whole (Table 3.5-1; also see Figure 3.5-1). These census tracts have, therefore, been determined to have disproportionately high low-income and/or minority populations, and may be subject to environmental justice analysis depending on whether adverse effects are expected to impact these census tracts.

Table 3.5-1. Census Tracts in Riverside County
Page 1 of 4

	Percent Minority	Disproportionate ^(a)	Percent Low Income ^(b)	Disproportionate ^(a)
United States	16.08	--	13.51	--
California	31.03	--	13.87	--
Riverside County	35.26	--	17.07	--
Census Tracts in Riverside County				
0301	52.19	Y	16.30	N
0302	28.16	N	16.92	N
0303	52.48	Y	28.18	Y
0304	90.24	Y	26.08	Y
0305	84.39	Y	25.32	Y
0306	14.90	N	1.81	N
0307	24.18	N	9.05	N
0308	25.31	N	8.06	N
0309	45.16	Y	12.26	N
0310	37.84	Y	13.74	N
0311	19.18	N	9.97	N
0312	27.03	N	3.43	N
0313	94.85	Y	17.39	Y
031401	22.74	N	27.99	Y
031402	25.71	N	30.83	Y
031501	28.14	N	38.67	Y
031502	25.54	N	25.30	Y
0316	33.28	N	38.20	Y
0317	38.29	Y	25.62	Y
0401	57.83	Y	39.34	Y
0402	49.00	Y	48.03	Y
0403	38.83	Y	36.12	Y
0404	25.29	N	32.87	Y
0405	30.02	N	32.91	Y
040601	31.43	N	30.93	Y
040602	24.08	N	8.20	N
0407	16.48	N	39.58	Y
040802	35.08	N	16.49	N
040803	20.91	N	9.00	N
040804	14.38	N	24.40	Y
040805	58.53	Y	0.00	N
0409	38.69	Y	19.06	Y
0410	36.07	Y	5.60	N

Notes: (a) Disproportionality exists if the census tract percentage is higher than the Riverside County percentage.
 (b) Low income is defined as below poverty level (\$12,764 for a family of four in 1989, as reported in the 1990 Census of Population and Housing).

Source: U.S. Bureau of the Census, 1991

Table 3.5-1. Census Tracts in Riverside County

Page 2 of 4

	Percent Minority	Disproportionate ^(a)	Percent Low Income ^(b)	Disproportionate ^(a)
0411	58.46	Y	44.27	Y
0412	42.93	Y	32.84	Y
0413	49.89	Y	25.23	Y
041401	30.49	N	40.96	Y
041402	49.63	Y	25.18	Y
0415	77.95	Y	10.89	N
0416	73.28	Y	15.72	N
041701	66.72	Y	69.85	Y
041702	33.82	N	22.63	Y
041801	25.84	N	66.84	Y
041802	31.54	N	85.43	Y
041901	31.43	N	71.46	Y
041902	28.64	N	47.27	Y
042001	23.47	N	35.58	Y
042002	36.16	Y	98.95	Y
0421	36.39	Y	80.98	Y
042201	23.88	N	89.37	Y
042202	42.95	Y	71.74	Y
042203	44.51	Y	96.49	Y
042204	32.99	N	94.69	Y
0423	47.54	Y	65.03	Y
0424	35.23	N	100.00	Y
042501	58.43	Y	98.35	Y
042502	45.79	Y	84.53	Y
042503	43.85	Y	90.25	Y
042601	41.42	Y	79.71	Y
042602	37.47	Y	53.17	Y
042603	44.27	Y	68.88	Y
042702	9.04	N	70.97	Y
042703	12.49	N	91.86	Y
042705	24.31	N	35.47	Y
042706	54.35	Y	33.86	Y
042707	18.52	N	38.25	Y
0428	67.44	Y	32.98	Y
0429	50.61	Y	36.86	Y
0430	30.60	N	88.16	Y
043198	19.08	N	70.04	Y
043201	15.76	N	3.17	N
043202	19.20	N	4.16	N

Notes: (a) Disproportionality exists if the census tract percentage is higher than the Riverside County percentage.

(b) Low income is defined as below poverty level (\$12,764 for a family of four in 1989, as reported in the 1990 Census of Population and Housing).

Source: U.S. Bureau of the Census, 1991

Table 3.5-1. Census Tracts in Riverside County
Page 3 of 4

	Percent Minority	Disproportionate ^(a)	Percent Low Income ^(b)	Disproportionate ^(a)
043203	13.94	N	9.31	N
043204	19.75	N	5.66	N
043205	15.79	N	6.43	N
043301	9.40	N	7.44	N
043302	20.11	N	11.95	N
043303	16.39	N	7.09	N
043401	36.41	Y	26.58	Y
043402	16.33	N	17.59	Y
043501	14.34	N	9.65	N
043502	23.95	N	11.18	N
0436	51.19	Y	21.89	Y
0437	13.56	N	8.71	N
043802	12.24	N	7.74	N
043803	12.42	N	10.90	N
043805	23.30	N	16.52	N
043806	25.70	N	15.72	N
0439	28.09	N	17.86	Y
0440	38.05	Y	32.63	Y
0441	27.42	N	10.98	N
0442	69.77	Y	28.43	Y
0443	53.79	Y	22.92	Y
044401	7.02	N	4.48	N
044402	16.53	N	8.95	N
044403	21.20	N	15.64	N
044501	20.99	N	11.96	N
044502	23.82	N	19.33	Y
0446	32.32	N	15.26	N
0447	41.86	Y	14.54	N
044802	28.34	N	10.33	N
044803	9.67	N	9.13	N
044901	38.25	Y	12.83	N
044902	15.01	N	7.64	N
044903	7.99	N	6.16	N
0450	51.08	Y	18.83	Y
045102	19.83	N	7.37	N
045103	13.39	N	8.94	N
045104	24.55	N	6.30	N
045201	29.53	N	7.99	N

Notes: (a) Disproportionality exists if the census tract percentage is higher than the Riverside County percentage.

(b) Low income is defined as below poverty level (\$12,784 for a family of four in 1989, as reported in the 1990 Census of Population and Housing).

Source: U.S. Bureau of the Census, 1991

Table 3.5-1. Census Tracts in Riverside County
Page 4 of 4

	Percent Minority	Disproportionate ^(a)	Percent Low Income ^(b)	Disproportionate ^(a)
045202	58.39	Y	16.87	N
0453	82.30	Y	17.23	Y
0454	92.13	Y	31.92	Y
0455	77.53	Y	23.33	Y
045601	80.97	Y	25.12	Y
045602	91.05	Y	37.60	Y
045701	97.67	Y	25.32	Y
045702	94.65	Y	22.36	Y
0458	51.56	Y	33.02	Y
0459	61.69	Y	25.32	Y
0460	21.90	N	19.34	Y
0461	53.96	Y	19.63	Y
0462	70.56	Y	24.15	Y
046398	0.00	N	0.00	N

Notes: (a) Disproportionality exists if the census tract percentage is higher than the Riverside County percentage.

(b) Low income is defined as below poverty level (\$12,764 for a family of four in 1989, as reported in the 1990 Census of Population and Housing).

Source: U.S. Bureau of the Census, 1991

4.5 ENVIRONMENTAL JUSTICE

As described in Section 3.5, disproportionately high low-income and minority populations have been identified in 85 of 124 census tracts within Riverside County (see Figure 3.5-1). Environmental justice analysis methods are described in Appendix L.

The analysis conducted for this EIS included a review of influencing factors (local community resources), and a discussion of resulting impacts associated with hazardous materials and hazardous waste management and the natural environment. Local community resources (e.g., community setting, land use and aesthetics, transportation, utilities) have been identified as influencing factors only, and therefore would not have disproportionately high and adverse human health and environmental effects on low-income and minority populations.

Environmental justice impacts can arise, however, as a result of the use of hazardous materials and generation of hazardous waste. Impacts associated with the IRP may occur regardless of implementation of the Proposed Action and alternatives. Impacts may also occur to soils and geology, water resources, air quality, noise, biological resources, and cultural resources as a result of reuse-related development activities.

Based upon the analysis conducted for this EIS, it was determined that reuse activities associated with the Proposed Action and alternatives would not have adverse effects on low-income and minority populations for the following: hazardous materials and generation of hazardous waste, geology and soils water resources, biological resources, and cultural resources. Moreover, impacts associated with such factors in the disposal and reuse of March AFB property would be contained within the base boundary. Additionally, activities associated with reuse and development affecting air quality would be basin-wide; thus, no disproportionately high and adverse air quality impacts to low-income and minority populations would be expected. Consequently, environmental justice analysis for all of these resources was determined to be unnecessary and was not conducted.

Reuse activities may, however, cause potential noise impacts associated with off-base surface transportation and aircraft CNEL of levels 60 dB and above, as discussed in Section 4.4.4. These impacts could affect some of the 85 census tracts identified as having disproportionately high low-income and minority populations in Riverside County. These off-base noise effects are discussed below.

4.5.1 Aircraft Noise

Aircraft noise contours were developed for the Proposed Action and each of the reuse alternatives. Aircraft noise related impacts are associated with those areas within the noise contours of CNEL 60 dB or greater. However,

due to continuing military aircraft activities under realignment, certain areas would be exposed to noise levels of 60 dB under the No-Action Alternative. Therefore, reuse-related noise impacts would occur where the noise contours for a reuse alternative cover a greater area than the contours for the No-Action Alternative. Impacts to areas in which there are no residences are eliminated from analysis, as are census tracts that do not contain disproportionately high low-income or minority populations.

4.5.1.1 Proposed Action. Under the Proposed Action, increased aircraft noise would occur as a result of reuse within 11 census tracts surrounding March AFB. All of these tracts contain disproportionately high low-income or minority populations. However, based on a review of aerial photographs, residential areas are present under the noise contours in only 4 of the 11 tracts: 042001, 042002, 042201, and 042603 (Figure 4.5-1). Within these four census tracts, it is estimated that by 2016 an additional 1,357 residents would be exposed to aircraft noise levels of CNEL 60 dB or greater (see Table 4.4-16). This number represents an increase of 8 percent over No-Action Alternative projections.

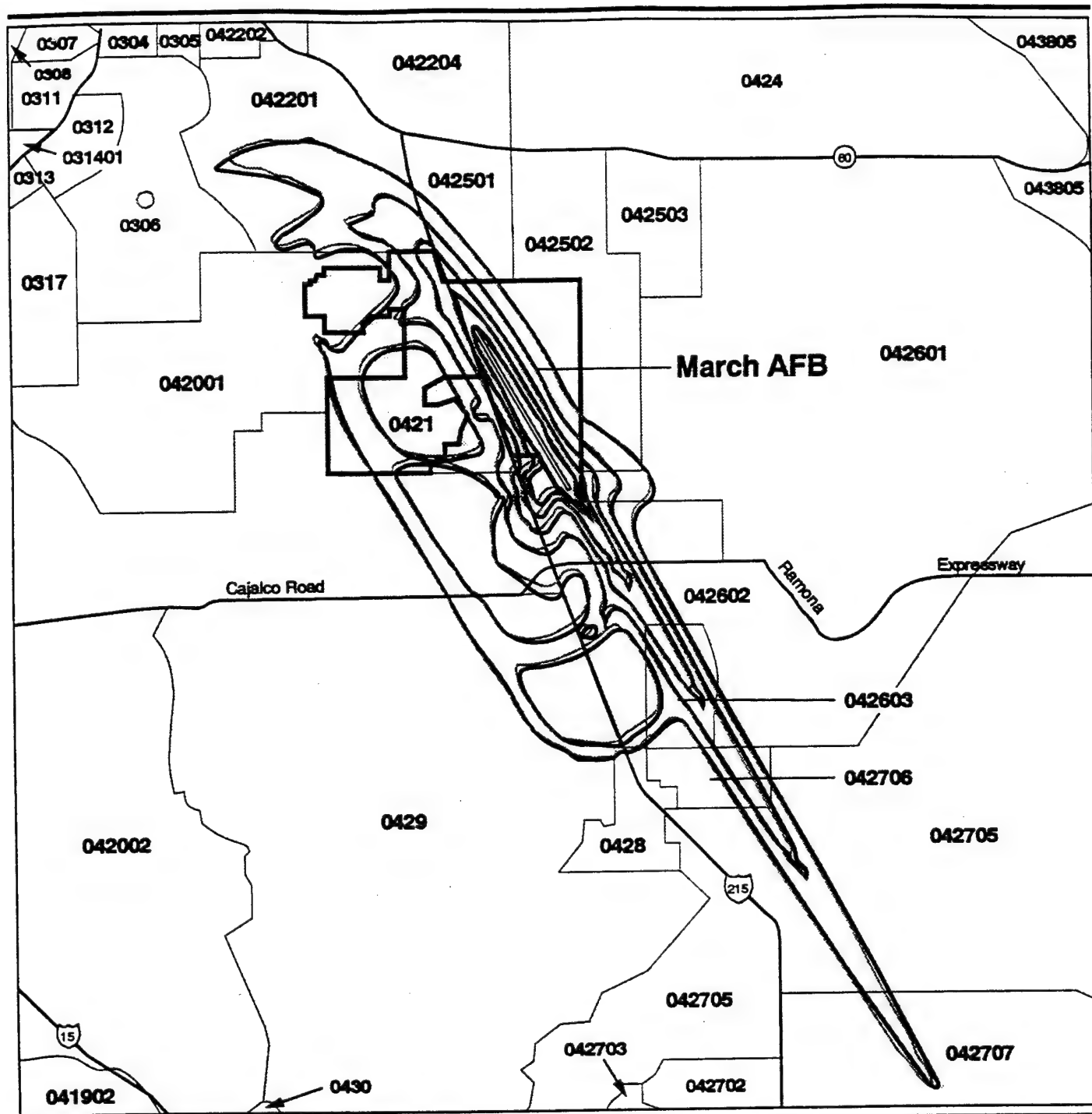
4.5.1.2 SKR/Aviation Alternative. Under the SKR/Aviation Alternative, the noise contours would be similar to those projected for the Proposed Action (see Figure 4.5-1), and the same four census tracts would be affected. Within these four census tracts, it is estimated that by 2016 an additional 616 residents would be exposed to aircraft noise levels of CNEL 60 dB or greater (see Table 4.4-16). This number represents an increase of 4 percent over No-Action Alternative projections.

4.5.1.3 SKR/Cargo Alternative. Under the SKR/Cargo Alternative, the noise contours would affect three census tracts (042002, 042201, and 042603) (see Figure 4.5-1). Within these three census tracts, it is estimated that by 2016 an additional 1,104 residents would be exposed to aircraft noise levels of CNEL 60 dB or greater (see Table 4.4-16). This number represents an increase of 7 percent over No-Action Alternative projections.

4.5.1.4 Military Aviation Alternative. Because there would be no civilian aviation operations under the Military Aviation Alternative, the noise contours would be the same as under the No-Action Alternative, and there would be no reuse-related aircraft noise impacts to any census tract.

4.5.2 Surface Traffic Noise

Surface traffic impacts were identified for the Proposed Action and each of the alternatives. Surface traffic noise impacts are associated with those roadway segments where residents would be exposed to surface traffic noise of CNEL 60 dB and above. However, some road segments would be exposed to noise levels of CNEL 60 dB under the No-Action Alternative. Therefore, reuse-related noise impacts would occur on those segments where a greater number of people would be exposed to noise levels of CNEL



EXPLANATION

- Census Tract Boundary
- High Minority/Low Income Populations
- 042002 Census Tract Designation
- 215 Interstate Highway
- 60 State Highway

- Proposed Action
- No-Action Alternative

**Increase in Aircraft Noise
(Proposed Action)**



March EIS/079d

March AFB Disposal FEIS

Figure 4.5-1

60 dB or above than under the No-Action Alternative. Impacts to road segments that are not located within disproportionately high census tracts have been eliminated from analysis, subject to field verification.

4.5.2.1 Proposed Action. Under the Proposed Action, increased surface traffic noise as a result of reuse would occur along some road segments within seven census tracts surrounding March AFB (042001, 042002, 0421, 042501, 042502, 042503, and 042601) (Figure 4.5-2 and Table 4.5-1). All of these census tracts contain disproportionately high low-income or minority populations.

4.5.2.2 SKR/Aviation Alternative. Under the SKR/Aviation Alternative, increased surface traffic noise as a result of reuse would occur along some road segments within eight census tracts (042001, 042002, 0421, 042201, 042501, 042502, 042503, and 042601) (see Figure 4.5-2 and Table 4.5-1). All of these census tracts contain disproportionately high low-income or minority populations.

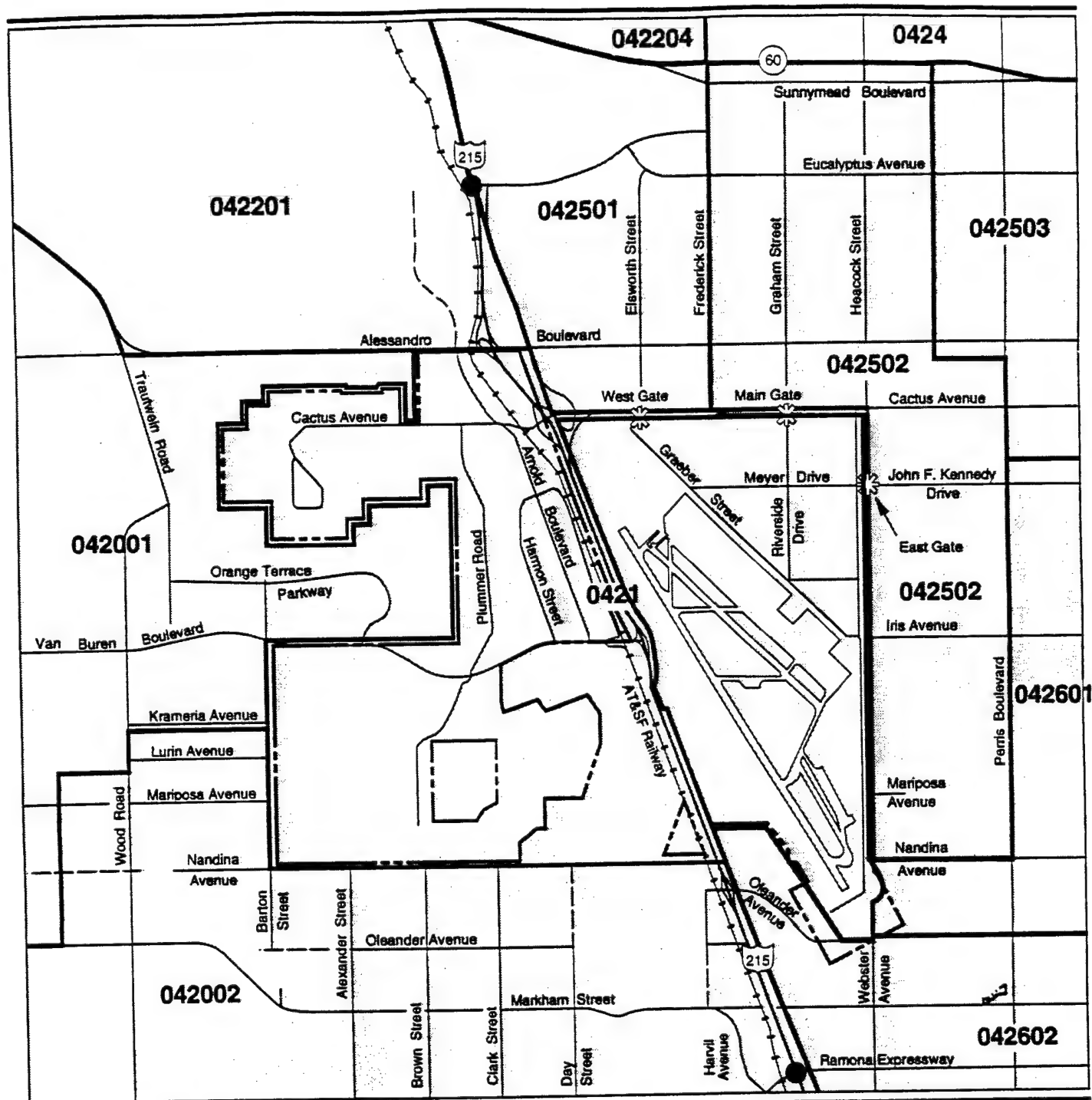
4.5.2.3 SKR/Cargo Alternative. Under the SKR/Cargo Alternative, increased surface traffic noise as a result of reuse would occur along some road segments within six census tracts (042002, 0421, 042501, 042502, 042503, and 042601) (see Figure 4.5-2 and Table 4.5-1). All of these census tracts contain disproportionately high low-income or minority populations.

4.5.2.4 Military Aviation Alternative. Under the Military Aviation Alternative, increased surface traffic noise as a result of reuse would occur along some road segments within eight census tracts (042001, 042002, 0421, 042201, 042501, 042502, 042503, and 042601) (see Figure 4.5-2 and Table 4.5-1). All of these census tracts contain disproportionately high low-income or minority populations.

Mitigation Measures

The following mitigation measures for potential environmental justice impacts associated with aircraft noise and surface traffic noise could be implemented by the new property owners and/or local planning jurisdictions:

- Incorporate noise insulation features, such as barriers and buffer zones, into development plans
- Conduct a noise barrier analysis along affected roadways and install barrier walls as needed
- Use insulating materials in new buildings to reduce interior noise levels
- Restrict new residential development to areas outside the CNEL 60 dB contour.



EXPLANATION

- | | | | |
|-------|--------------------|-------|--|
| ----- | 1995 Base Boundary | ----- | Unpaved Road |
| | Base Gate | ● | Interchange |
| | Interstate Highway | | High Minority/
Low Income Populations |
| | State Highway | ----- | Census Tract Boundary |
| | Railroad | 0421 | Census Tract Number |

0 1/4 1/2 1 Mile



Roadway Segments within Disproportionate Census Tracts

Figure 4.5-2

Table 4.5-1. Population Affected by Increase in Surface Traffic Noise (2016)
Page 1 of 2

Roadway	Segment	Disproportionate Census Tract(s) ^(a)	Increase Over No-Action Alternative			
			Proposed Action	SKR/ Aviation Alternative	SKR/ Cargo Alternative	Military Aviation Alternative
Alessandro Blvd	Trautwein Rd to I-215	42001, 421, 42201	(b)	19	(b)	12
Alessandro Blvd	I-215 to Elsworth St	42501	20	26	(b)	36
Alessandro Blvd	Elsworth St to Graham St	42501, 42502	49	39	(b)	32
Alessandro Blvd	Graham St to Heacock St	42502	(b)	(b)	(b)	(b)
Alessandro Blvd	Heacock St to Perris Blvd	42502, 42503	6	(b)	6	(b)
Cactus Ave	I-215 to Elsworth St	421, 42501	(b)	(b)	(b)	(b)
Cactus Ave	Elsworth St to Graham St	421, 42501, 42502	(b)	(b)	(b)	(b)
Cactus Ave	Graham St to Heacock St	421, 42502	(b)	(b)	(b)	(b)
Cactus Ave	Heacock St to Perris Blvd	42502	73	41	73	73
John F. Kennedy Dr	Heacock St to Perris Blvd	42502	474	359	288	113
Van Buren Blvd	Wood Rd to Trautwein Rd	42001	(b)	(b)	(b)	(b)
Van Buren Blvd	Trautwein Rd to Orange Terrace Pkwy	42001	(b)	41	(b)	(b)
Van Buren Blvd	Orange Terrace Pkwy to Plummer Rd	421	(b)	(b)	(b)	(b)
Van Buren Blvd	Plummer Rd to I-215	421	38	54	NC	6
Nandina Ave	Wood Rd to Barton St	42002	22	32	3	41
Nandina Ave	Barton St to Alexander St	421, 42002	(b)	(b)	(b)	(b)
Nandina Ave	Alexander St to Clark St	421, 42002	(b)	(b)	(b)	(b)
Oleander Ave	I-215 to Heacock St	421, 42602	(b)	(b)	(b)	(b)
Markham St	Wood Rd to Alexander St	42002	(b)	(b)	(b)	(b)
Markham St	Alexander St to Clark St	42002	7	10	7	10
Cajalco Rd	Wood Rd to Alexander St	429, 42002	(b)	(b)	(b)	(b)
Cajalco Rd	Alexander St to Clark St	429, 42002	(b)	(b)	(b)	(b)
Cajalco Rd	Clark St to I-215	429, 42002	(b)	(b)	(b)	(b)
Wood Rd	Trautwein Rd to Van Buren Blvd	42001	(b)	7	(b)	(b)
Wood Rd	Van Buren Blvd to Lurin Ave	42001	(b)	(b)	(b)	(b)

Table 4.5-1. Surface Traffic Noise Within Disproportionate Census Tracts

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Roadway	Segment	Disproportionate Census Tract(s) ^(a)	Increase Over No-Action Alternative			
			Proposed Action	SKR/ Aviation Alternative	SKR/ Cargo Alternative	Military Aviation Alternative
Trautwein Rd	Alessandro Blvd to Wood Rd	42001	3	6	(b)	3
Trautwein Rd	Wood Rd to Van Buren Blvd	42001	(b)	(b)	(b)	(b)
Barton St	Van Buren Blvd to Nandina Ave	42001, 421, 42002	(b)	(b)	(b)	(b)
Alexander St	Nandina Ave to Markham St	42002	25	9	25	(b)
Alexander St	Markham St to Cajalco Rd	42002	10	3	(b)	(b)
Clark St	Nandina Ave to Markham St	42002	93	93	(b)	25
Clark St	Markham St to Cajalco Rd	42002	4	10	(b)	4
I-215	Alessandro Blvd to Cactus Ave	421, 42501	(b)	(b)	(b)	(b)
I-215	Cactus Ave to Van Buren Blvd	421	(b)	38	(b)	(b)
I-215	Van Buren Blvd to Oleander Ave	421, 42002, 42602	(b)	(b)	(b)	(b)
I-215	Oleander Ave to Cajalco Rd	42002, 42602	(b)	(b)	(b)	(b)
Elsworth St	Cottonwood Ave to Alessandro Blvd	42501	7	7	7	7
Elsworth St	Alessandro Blvd to Cactus Ave	42501	(b)	(b)	(b)	(b)
Frederick St	Alessandro Blvd to Cactus Ave	42502	(b)	(b)	(b)	(b)
Graham St	Alessandro Blvd to Cactus Ave	42502	(b)	(b)	(b)	(b)
Heacock St	Cactus Ave to John F. Kennedy Dr	421, 42502	(b)	(b)	(b)	(b)
Heacock St	John F. Kennedy Dr to Iris Dr	421, 42502	6	6	6	(b)
Heacock St	Iris Dr to Nandina Ave	421, 42502	(b)	3	3	3
Heacock St	Nandina Ave to Oleander Ave	421, 42601, 42602	(b)	(b)	(b)	(b)
Perris Blvd	Alessandro Blvd to Cactus Ave	42502, 42503	28	16	16	(b)
Perris Blvd	Cactus Ave to John F. Kennedy Dr	42502, 42503	(b)	(b)	(b)	(b)
Perris Blvd	John F. Kennedy Dr to Iris Dr	42502, 42601	39	(b)	13	1
Perris Blvd	Iris Dr to Nandina Ave	42502, 42601	16	(b)	16	(b)
Perris Blvd	Nandina Ave to Oleander Ave	42601	(b)	(b)	(b)	(b)

Note: (a) Disproportionality exists if the census tract percentage is higher than the Riverside County percentage.

(b) Decrease or no change from No-Action Alternative.

APPENDIX L

ENVIRONMENTAL JUSTICE ANALYSIS METHODS

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1801 1801 1801

An environmental justice analysis is an examination of adverse impacts that would occur from a Proposed Action and its alternatives to determine if these adverse impacts would disproportionately affect areas with low-income and/or minority populations. Low-income populations include families below poverty level (\$12,764 for a family of four in 1989, as reported in the 1990 Census of Population and Housing). Minority populations are identified as Black; American Indian, Eskimo, or Aleut; Asian or Pacific Islander; Hispanic; or other.

The Region of Comparison (ROC) for environmental justice impacts is defined as the smallest political unit that encompasses the area in which the majority of environmental impacts associated with a proposed action or its alternatives would occur. For the disposal and reuse of March AFB property, the ROC is defined as Riverside County.

To identify areas of low-income and or minority populations within the ROC, 1990 Census of Population and Housing data for Riverside County was used. The U.S. Department of Commerce, Bureau of the Census, has grouped census data in Riverside County by census tracts. Data for each census tract were compared to Riverside County data to determine which tracts have disproportionately high low-income and/or minority populations. Census tracts with percentages of low-income and/or minority populations greater than the Riverside County average are defined as disproportionately high. A Geographic Information System database was utilized to create a plot of the census tracts in the ROC (Riverside County).

The EIS analysis is the basis for identifying environmental justice impacts. Adverse impacts that may occur independent of the disposal and reuse of March AFB property, such as the cleanup of on-site contamination, were not considered in the property analysis because they are not resulting from the disposal action. Impacts are considered adverse if they would result in a deleterious effect on human health or the environment that is significant, unacceptable, or above generally accepted norms. The area in which the projected adverse impacts would occur is referred to as the Resource Adverse Impact Footprint (RAIF). The RAIF is identified for each resource area because its extent may vary for each resource examined.

To identify census tracts that would be potentially affected by the Proposed Action and alternatives, the RAIFs for each resource area were overlaid on a map of the census tracts. All disproportionately high low-income and/or minority census tracts touched by the RAIFs are identified. Aerial photographs (dated January 1994) were examined to determine if residential areas are located within the RAIF. Disproportionate impacts are considered

to occur where the RAIF overlays residential areas within disproportionately high low-income and/or minority census tracts.

For the disposal and reuse of March AFB property, disproportionate impacts were identified for only the noise resource. Both surface traffic noise and aircraft-related noise were identified as affecting census tracts with disproportionately high minority and/or low-income populations.

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Vita

Captain Barbara E. Owens was born on 9 September 1966 in Neubrucke, Germany. She graduated from Anderson High School and attended Purdue University, graduating with a Bachelor of Science in Electrical Engineering and a USAF commission in August, 1988. She entered active duty at the 380th Civil Engineering Squadron in March, 1989.

Captain Owens was an Electrical Design Engineer for Plattsburgh AFB from March 1989 through May 1990. She then became the Chief of Construction Management for the 380th CES for the remainder of her tour at Plattsburgh AFB. From October 1991 to October 1992, she was assigned to the 51st CES at Osan AB, ROK, as the Chief of Mechanical and Electrical Engineering Design Section. Captain Owens continued on to the 52nd CES at Spangdahlem AB, Germany, where she was a Base Contract Programmer from October 1992 through July 1993. She then became the Chief of Maintenance Engineering and SABER Contracts until the completion of her tour in October 1994.

Returning stateside, Captain Owens attended Squadron Officer School in late October 1994, continuing on to the Pollution Prevention Directorate at Headquarters Air Force Materiel Command. She entered the Air Force Institute of Technology School of Engineering in May 1995. After graduation, she will serve in the Environmental Conservation and Planning Directorate at the Air Force Center for Environmental Excellence, Brooks AFB, Texas.

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